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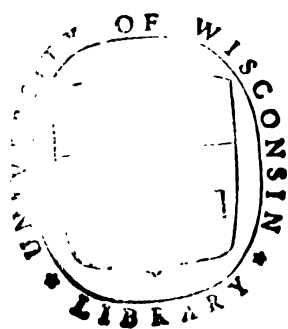
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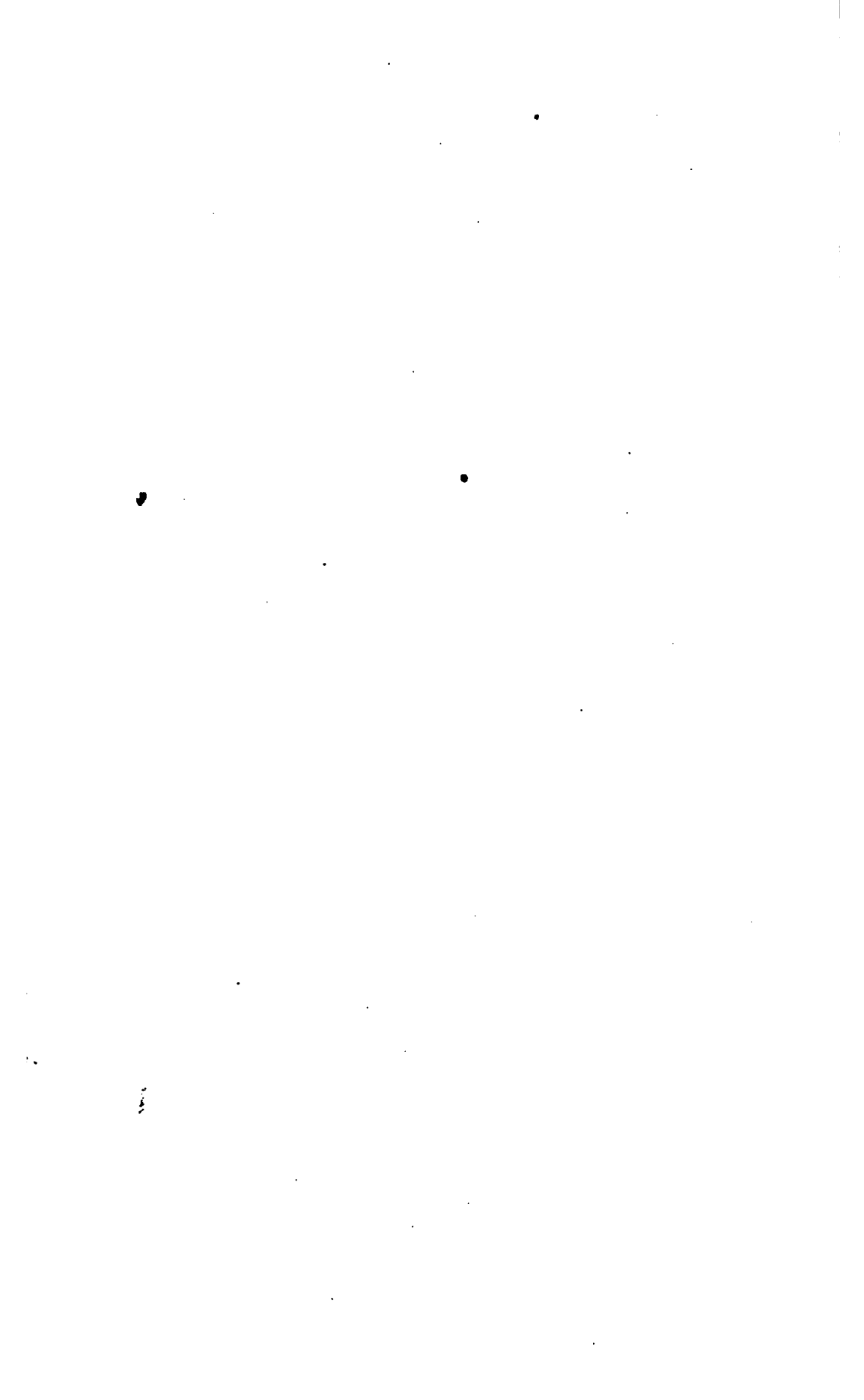


NEW  
AMERICAN CYCLOPÆDIA.

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VOL. IV.  
BROWNSON-CHARTRES.





THE NEW  
AMERICAN CYCLOPÆDIA:

A

Popular Dictionary

OF

GENERAL KNOWLEDGE.

EDITED BY

GEORGE RIPLEY AND CHARLES A. DANA.

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# THE NEW AMERICAN CYCLOPÆDIA.

## BROWNSON

BROWNSON, ORRIS AUGUSTUS, LL. D., an American author, born at Stockbridge, Vt., Sept. 16, 1803. His early life, passed chiefly with old people in a lonely locality, was without the sports and charms which usually belong to childhood. He was taught the assembly's catechism, the apostles' creed, and the Lord's prayer; and, with a fondness for reading, had for books almost nothing but the Scriptures and a few religious treatises. Hence his thoughts took a deeply religious turn; and at 9 years of age, having been permitted to witness a general military muster, and being asked what he had seen to interest him, his answer was, that he had seen two old men talking on religion. In fact, he had forgotten the soldiers to listen to a debate on election and free-will, in which he himself took part. One of his earliest aspirations was to become a clergyman. In his 19th year, he joined the Presbyterian church at Ballston, N. Y., where he was attending an academy, but soon meeting with men of various religious opinions, he changed his views after much argumentation and a period of perplexity, and became, in 1825, a Universalist minister. He preached in different villages of Vermont and New York, and wrote for and edited various religious periodicals, disseminating a confused medley of bold thoughts. His ecclesiastical position had grown into disfavor with him, when, making acquaintance with Robert Owen, he was fascinated by schemes of social reform; and in 1828 he was prominent in the formation of the working-men's party in New York, the design of which was to relieve the poorer and more numerous classes by political organization. Of the effectiveness of this movement he presently despaired, when the writings of Dr. Channing drew his attention to the Unitarians, and in 1832 he became pastor of a Unitarian congregation. He now enjoyed the acquaintance of many cultivated persons; was introduced to the French and German literatures; and began the methodical study of philosophy and theology. His chief advisers were the works of the French philosophers, and the most important result of his study was a conviction of the necessity of a new religious organization of mankind, which should render the religious senti-

ments efficient in society, and give to faith, love, and union the supremacy over disbelief, uncertainty, and individualism. In 1836 he organized, in Boston, the "society for Christian union and progress," of which he retained the pastorate till he ceased preaching, in 1843. Immediately after removing to Boston, he published his "New Views of Christianity, Society, and the Church," remarkable for its protest against Protestantism; and in which, by speculations akin to those of Benjamin Constant and the St. Simonians, he looked to the immediate future for a transformation of religious and social ideas and institutions. In 1838 he established the "Boston Quarterly Review," of which he was proprietor, and almost sole writer, during the 5 years of its separate existence, and to which he contributed largely during the first year after it was merged into the "Democratic Review," of New York. It was designed not to support any definite doctrine, but to awaken thought on great subjects, with reference to speedy and radical changes. To this end also he published, in 1840, "Charles Elwood, or the Infidel Converted," a philosophico-religious treatise, in the form of a novel. This book has passed through several editions in England, but as the author soon afterward changed his views on the subjects treated in it, he declined to have more than one edition issued in this country. In his sermons, essays, and books, he had pushed abstract principles to speculative results, and, as he afterward said, had accepted and vindicated nearly every error into which the human race has ever fallen. Having gone in one direction about as far as was possible, and meeting with little either of sympathy or success, he began to suspect that man was not made for a church-builder, but that God himself had founded a church centuries since, fully adapted to the nature and destiny of human beings. This reactionary tendency in his thoughts was encouraged by a course of reasoning; and the ultra iconoclast in institutions, and "chartered libertine" in doctrine, began to look to the Roman Catholic church as the organization which he had vainly endeavored to construct for the redemption of humanity. With his entrance into the Roman communion, in

1844, the romance of his intellectual career terminates, and he has since been laboring strenuously for the doctrines of that church. His course as a metaphysical thinker runs parallel with his ecclesiastical career. At one time a sensationist, he passed to the sentimental or intuitional philosophy, and was one of the earliest admirers of Cousin in this country. Two articles which he published on eclecticism in the "Christian Examiner," in 1837, were noticed and applauded by Cousin in the preface to the 8d edition of his *Fragments Philosophiques*. After devoting more attention to philosophy, he embraced rationalism. A later persuasion of the necessity of what may be called the traditional element, made him a Catholic in religion, and produced in his philosophy a union of the two systems of traditionalism and rationalism, which is substantially his present doctrine. The method which he adopts in his system is the distinction between intuition (direct perception) and reflection (indirect or reflex knowledge). The mind is unconsciously intuitive; it does not, in intuition, know that it has intuition of this or that truth, because as soon as it knows or is conscious of the intuition it has reflex knowledge. Reflection can contain nothing which is not first in intuition. In order to reflect on that which we know intuitively, we must have some sensible sign by which the mind may apprehend or take hold of it. Such a sign is language, both in the ordinary and figurative sense of the word, which thus holds in the metaphysics of Mr. Brownson a place corresponding to that which tradition holds in his religious system. The knowledge of God, he maintains, is intuitive. The ideal element of every intellectual act is God creating creatures, *ens creat existentias*. The later publications of Mr. Brownson are the "Spirit Rapper," in 1854, and the "Convert, or Leaves from my Experience," in 1857. Since 1844 he has supported almost single-handed, in Boston and New York, "Brownson's Quarterly Review," devoted especially to the defence of Catholic doctrines, but also discussing the questions in politics and literature with which the public mind is occupied. An attempt was made by Dr. John H. Newman and others to persuade him to accept a chair in the new Irish university in Dublin, but he preferred to continue his labors in his native country. Translations of several of his works and essays have been published and favorably received in Europe, and his "Review" is regularly republished in London simultaneously with its appearance in this country.

BROWNSVILLE, a post borough of Fayette co., Penn. It is situated on the Monongahela river, where it is crossed by the national road. A bridge over the river has been erected here at a cost of \$50,000, and a 2d bridge, of cast-iron, over Dunlap's creek, connects Brownsville with the neighboring borough of Bridgeport. In the vicinity are rich mines of bituminous coal. The Monongahela is navigable to this point for large steamboats. The borough

was incorporated in 1815, and contained in 1853 about 4,500 inhabitants, who are extensively engaged in various manufactures, and in steamboat building.

BROWNSVILLE, formerly Fort Brown, a post town, capital of Cameron co., Texas, on the left bank of the Rio Grande, opposite Matamoras, and about 40 miles from the gulf of Mexico. It is easily accessible by steamboats, and its advantageous situation and trade with Mexico have rendered it one of the most prosperous and populous towns of the state. The value of its imports in 1852 was estimated at \$5,000,000. It contains a custom-house, 2 newspaper offices, and 8 churches; pop. in 1854, about 5,000.—At the commencement of the war with Mexico, in 1846, the U. S. troops under Gen. Taylor occupied this place, threw up a strong work, and, leaving in it a small garrison, marched to the relief of Point Isabel, on the coast, where their supplies were threatened. In the mean time the Mexicans, under cover of the guns of Matamoras, erected batteries, and on May 4 commenced a bombardment of the fort, which lasted 160 hours. The Americans defended themselves with spirit and success, maintaining their position until the surrender of the city to Taylor, but losing their commander, Major Brown, who was killed by a shell on the 6th. It is in honor of this officer that the town was named. It has of late years been the starting point of several unsuccessful filibuster expeditions into the Mexican territory.

BROWNSVILLE, the capital of Haywood co., Tenn., is situated in the midst of a rich, level country, is surrounded by cotton and maize plantations, and is the centre of an active trade. It contains a female college under the direction of the Baptists. Pop. 1,000.

BRUAT, ARMAND JOSEPH, a French admiral, born at Colmar, 1796, died in 1855. In 1843 he was governor of the Marquess islands. In 1848, after having, under the administration of Cavaignac, officiated for a short time as prefect of the port of Toulon, he was appointed governor of Martinique and commander of the naval depot in the Antilles, of which he became governor-general, March 12, 1849. In 1852 he became a member of the board of admiralty, and in the following year commander-in-chief of the ocean squadron. In 1854 he served in the fleet in the Black sea as vice-admiral, under Admiral Hamelin, and took an active part in the first bombardment of Sebastopol. On Dec. 8 he took the place of Hamelin, and was on the point of returning to France when, after leaving the port of Messina, he died of the cholera.

BRUCE, a noble family of Scotland, 2 members of which occupied the throne, after one had pretended to it in vain.—ROBERT, 7th lord of Annandale, was one of the 13 claimants of the crown in 1290, when, by the demise of Margaret, the "maiden of Norway," the posterity of the 8 last kings of Scotland had become extinct, and the succession reverted to the posterity of David, earl of Huntingdon, and younger

brother of King William, the Lion. The question of succession speedily resolved itself into a simple alternative between 2 competitors, John Baliol, the great-grandson of David by his eldest daughter, Margaret, and Robert Bruce, the grandson of David by his 2d daughter, Isabel. The contest was, by mutual consent, referred for decision to King Edward I. of England, who pronounced, in accordance with principles that would not now be disputed, that "in all indivisible heritages the more remote in degree of the 1st line of descent is preferable to the nearer in degree of the 2d," and thus gave the kingdom to Baliol, from whom he required homage and fealty. Bruce now retired to England, took service in the English army, and fought against Baliol in the war which resulted in the subjugation of Scotland to England. He returned to his English estates soon after the resignation of Baliol, passed the last years of his life in the deepest contempt among the more patriotic of his countrymen, and died about 1296.

—ROBERT, son of the preceding, earl of Carrick and Annandale, constantly followed the fortunes of Edward, and fought bravely against Wallace and the patriot party of Scotland. After having assisted in defeating Wallace at Falkirk, he is said to have had an interview with him on the banks of the Carron, to have been affected to tears by his patriotism, devotion, and misfortunes, and to have sworn to join the national standard. This scene is the subject of a poem by Mrs. Hemans. From this time he slackened his zeal for England, but did so little for the national cause that he was able to make his peace with Edward when, a little later, after the capitulation at Irvine, Wallace was driven with his adherents into the northern mountains.

—ROBERT, son of the preceding, earl of Carrick, and afterward king of Scotland, born March 21, 1274, died July 9, 1329. He acted at first as Edward's liegeman, but vacillated between the 2 parties, taking no very active part in the struggle between Wallace and England, but inclining to the national cause when a gleam of success enlivened the hopes of the patriots, and, at the approach of Edward, making his peace with the conqueror. He was one of those consulted by the king in the settlement of Scotland as an English province, and was permitted to retain the extensive lands of his ancestors unalienated. It chanced in 1306 that Comyn, the son of Baliol's sister, a nobleman near to the crown, and already distinguished by his efforts to recover the independence of his country, arrived in Dumfries about the same time with Bruce. By appointment, he met Bruce alone in the church of the Minster, who there stabbed him with his dagger; whether by premeditated treachery or in a sudden fit of passion cannot now be ascertained. Bruce hurried to the church door bloody and agitated, and to the inquiries of his attendants replied: "I think I have killed Comyn!" "You think!" exclaimed one of the number—"I make certain!" and rushing with the others

into the church, despatched the wounded nobleman. The Scotch historians have fabricated a tale to palliate an act which was in harmony with the turbulent spirit and bloody disposition of the age and country, and the authors of which, instead of feeling disgraced, prided themselves on the deed as on an exploit, one of them assuming as his crest a bloody hand holding a dirk, with the legend for a motto, "I make certain." By the murder of Comyn, Bruce had staked his life, and could save it only by winning a sceptre. He assumed the title of king, summoned the Scots to his standard, and was crowned, without any opposition, at Scone. Edward immediately sent Aymar de Valence, earl of Pembroke, with a great army to chastise the rebels. The force of Bruce was almost immediately destroyed, 6 of his best knights made prisoners, and he himself, thrown from his horse, was rescued only by the devotion of Seaton. For 2 months, with his brothers and the ladies of his household, he wandered to and fro in the wilds of the Grampian hills, living as an outlaw on the deer of the hills and the salmon of the streams, till his party being discovered, defeated, and forced to separate, he buried himself for concealment in the lonely island of Rathlin, on the north of Ireland. His 3 brothers, wife, and sister, 8 ecclesiastics in full armor, and others, were captured; and the brothers were soon after hanged at Carlisle, and the prelates and ladies were imprisoned in various parts of England. In the spring of 1307 Bruce returned from his retreat, surprised his own castle of Carrick, defeated small parties of English in many skirmishes, and was enabled to maintain himself among the hills and forests, until Edward, indignant at the partial success of men whom he regarded as outcasts from chivalry and forsworn felons, called out the army of his realm and marched toward the borders, but died on his way, leaving to his son a charge not to bury his bones till he had borne them in triumph from Berwick bounds to the utmost highlands. For 8 years Edward II. paid no attention to his father's advice or the Scottish war, but in the autumn of 1310 he marched into Scotland as far as the Forth without encountering an enemy, for Bruce wisely declined to give him battle. In the next year he sent his favorite Gaveston to renew the war, who penetrated beyond the Forth, but still gained no advantages, Bruce constantly retreating before him, keeping the hills where he could not be assailed, and harassing the English by constant petty skirmishes, in which he mostly worsted them. The following years were passed by Edward in ignoble contentions with his parliament, and by Bruce in gradually but surely recovering all that he had lost in Scotland, until, in 1314, the strong hill fortress of Stirling alone held out for the English, and even that the governor, Mowbray, had been forced to consent to surrender if it should not be relieved before the feast of St. John the Baptist. This at length aroused Edward, who, at

the head of a large army, encamped in the neighborhood of the beleaguered fortress, and was there met by Bruce at the head of 80,000 picked men, on the eve of the festival fixed for its surrender. The battle of Bannockburn, which succeeded, was the bloodiest defeat which the English ever suffered at the hands of their Scottish neighbors. It fixed the crown securely on the head of Bruce, and at once enabled him to exchange his prisoners, who were of the highest rank in England, against his wife, his sister, and his other relatives, who had languished so long in captivity. After this success the Scottish people assumed the offensive and invaded Ireland, where they at first gained considerable successes, and of which Edward Bruce was crowned king. While the dissensions lasted between Edward and his barons, Robert Bruce repeatedly devastated the borders and all the north of Yorkshire, even to the walls of York, into which he on one occasion chased Edward in disgrace, narrowly failing to make him prisoner. In 1283 this bloody war, which had raged, with few pauses, for 23 years, was brought to a close by a truce concluded between the 2 kingdoms for 13 years, to remain in force even in the event of the death of one or both of the contracting parties. Four years after this Edward II. was compelled to abdicate in favor of his son, Edward III., and Bruce, seeing his occasion in the distracted state of England, renewed the war, with the avowed intention of forcing Edward to renounce his claim of sovereignty over the crown of Scotland. In 1282 this renunciation was made; Scotland was declared sovereign and independent; Jane of England, the sister of Edward, was affianced to David, prince of Scotland; and Robert Bruce paid £20,000 sterling to defray the expenses of the war. He died the next year, having, after a life of incessant toil and warfare, secured the independence of his country and won the crown, which he left undisputed to his son.—DAVID, son of the preceding, king of Scotland, born about 1280, died in 1270. Shortly after his accession, at the age of 9 years, his kingdom was invaded, and his crown wrested from him, by Edward Baliol, son of that John Baliol whom Edward I. had compelled to resign the crown. In support of his claim Edward III. maintained a fierce strife on the borders, in active though undeclared hostilities to the Scots. David, with his young queen, Jane of England, escaped to France, where he resided till 1241, when, the nobles Murray, Douglas, and Stuart having expelled Baliol from the throne into the northern counties of England, he ventured to return. In 1246, while Edward III., with the flower of his army, was absent in France, David suddenly invaded England, at the head of 80,000 infantry, mounted for the march on galloways, and of 3,000 men-at-arms. But a small army of English had collected themselves secretly at Aukland park, in Durham, composed of 1,200 men-at-arms, 8,000 archers, and about 7,000 vassals

of the church, officered by clergymen and others, and animated by the presence and exhortations of Queen Philippa. The English fought desperately, though with no regular leader, and the Scottish troops were totally defeated, leaving 15,000 men dead on the field of battle and their king a prisoner. From this time until 1257 David was detained a prisoner in the tower of London, when he was liberated after the battle of Poitiers, on the agreement to pay 100,000 marks in 20 half-yearly instalments, a truce being sworn to and hostages interchanged between the 2 countries. This truce was afterward extended to 25 years further, under the name of the great truce, which, David Bruce dying shortly after its ratification, was faithfully observed by his successor, Robert, the first of the Stuart kings of Scotland.

BRUCE, EDWARD, Lord, a Scottish judge and politician, born in 1549, died Jan. 14, 1611. In 1594 he was sent to remonstrate with Queen Elizabeth on the countenance she gave to the earl of Bothwell, and though she would not deliver Bothwell up, she compelled him to leave her dominions. In 1598 he went a second time to England on an unsuccessful mission to induce Elizabeth to acknowledge James VI. as her successor. In 1601, having again gone to England with the earl of Mar, to intercede for the ill-fated earl of Essex, and arriving after his execution, they adroitly converted their mission of supplication into one congratulating Elizabeth on her escape from the conspiracy. Owing to the judicious conduct of Bruce, the undisputed accession of James on the death of Elizabeth took place, Bruce, knighted and created Baron Bruce of Kinloss, accompanied James to England in 1603, and was made privy councillor and master of the rolls.

BRUCE, JAMES, a Scotch traveller, born at Kinnaird, Dec. 14, 1780, died April 27, 1794. He was educated in London and in the university of Edinburgh, and abandoned the profession of advocate, to which he had been destined, for a mercantile life. His wife dying soon after his marriage, he sought diversion from his grief in travel, made the tour of the continent, and at Madrid studied the numerous Arabic MSS. in the Escorial, but was forbidden by the Spanish government to publish them. He returned to England, engaged in studying the oriental languages, particularly the Ethiopian, and renounced commerce in 1763 to accept the consulship at Algiers. He was soon after selected by Lord Halifax to undertake what had baffled curiosity and power since the age of Cambyse, namely, the discovery of the source of the Nile. He left Algiers in 1765, visited rapidly Tunis, Tripoli, Rhodes, Cyprus, Syria and Egypt, and in Feb. 1770 reached the city of Gondar, where he began his explorations for the head of the Nile. After remaining 2 years in Abyssinia, and visiting the source of the Bahr-el Azrek, which he mistook for the true Nile, he returned through Nubia and Egypt, narrowly escaping the plots of the savages and

the whirlwinds of the desert, and arrived in Europe while the report of his death was current. The narrative of his voyages, published at Edinburgh in 1790, excited universal interest.

BRUCE, MICHAEL, a Scottish poet, born at Kinneswood, in the county of Kinross, March 27, 1748, died there, July 6, 1787. His parents were poor, but he was educated to become a minister of the sect called Burghers, of which they were members. At Edinburgh, among others, he became intimate with Mr. John Logan (himself subsequently a poet), who eventually collected and edited his friend's poems. By the time that Bruce was 18 he was attacked with consumption, and his spirits became depressed by illness and poverty. To obtain subsistence he now taught school in a country village for some time. Shortly before his demise he wrote his "Elegy."

BRUCIA, a bitter alkaline body, associated with the similar bodies, strychnia and igasuria, in the nux vomica and bean of St. Ignatius. It is crystallizable, soluble in hot and cold water and alcohol, and possesses similar medicinal properties to those of strychnia. As it has only about  $\frac{1}{4}$  the strength of strychnia, this is used in preference. It was originally discovered by Pelletier and Caventou in the false *Angostura* bark.

BRUCK, KARL LUDWIG, baron, Austrian minister of finance, born Oct. 18, 1798, at Elberfeld. In early life he was a merchant's clerk in Bonn. Afterward he took a part in the campaign of 1814-'15, and in 1821, after an unsuccessful effort to obtain employment from the East India company in London, he went to Trieste, on his way to Greece, where he intended to join the war of independence, but the merchants of Trieste induced him to resume commercial pursuits, and in 1828 he married the daughter of a merchant there, and made that city his home, acquiring wealth and influence by successful trade. It was owing to his exertions that the Trieste underwriters formed in 1838 an association under the name of *Lloyd Austriaco*, of which he was director until 1848. His object was to simplify the extensive insurance business of Trieste, and at the same time to organize direct steamboat connection between Trieste and the Mediterranean and Levantine ports. This was so successful that the government conferred upon him the rank of baron, and subsequently appointed him its ambassador at the Frankfort parliament, in which the citizens of Trieste elected him as their representative. After the Viennese revolution of Oct. 1848, he was called upon to join the Schwartzemberg cabinet as minister of commerce and public works. He was active in the establishment of tribunals of commerce, in the reform of the post-office and the diplomatic service, in the organization of telegraphs and railways, and in the creation of an Austrian maritime and commercial code. The adoption of the constitution of March 4, 1849, was in a great measure due to his exertions; he negoti-

ated the treaty of peace with Sardinia; and his memorable project of a commercial union between Austria and the German states was submitted to the respective governments in 1849, and again in 1850. In May, 1851, he withdrew from the cabinet, as he protested against the extravagant measures of the finance minister. In Dec. 1852, he concluded a commercial treaty between Austria and the German customs union; in 1858 he received the appointment of inter-nuncio at Constantinople. He opposed the declaration of war by the sultan in 1858, and objected to the passage of the British fleet through the Dardanelles. He negotiated the convention of June, 1854, by which Austria gained a strong military position on the Danube as far as to the Pruth, without incurring any further obligation than that of defending the same. Since March 10, 1855, he has presided over the financial department in the Austrian government.

BRUCKENAU, a town of Bavaria, on the Sinn. It contains a royal castle, and is situated in the midst of beech forests and beautiful mountain scenery. Near the town stands a Franciscan convent, and about 2 miles distant, in the valley of the Sinn, are the chalybeate springs and baths of Bruckenan. A pump-room has been erected here by the present king, and in the summer season the place is frequented by the Bavarian court.

BRUCKER, JAKOB, a German divine and historian of philosophy, born in Augsburg, Jan. 22, 1696, died Nov. 26, 1770. His great work is the *Historia critica Philosophia*, from the creation of the world to his own times, 5 vols. 4to, Leipzig, 1741. It went through 2 editions during the life of its author, and since his death has been repeatedly abridged, and freely used by historians of philosophy.

BRUEYS D'AIGALLIERS, FRANÇOIS PAUL, count, a French admiral, born in 1758, killed at the battle of Aboukir, Aug. 24, 1798. He was the commander on that occasion, and while descending the quarter deck of his flag-ship was almost cut in two by a cannon ball. His officers attempted to carry him below, but he refused, exclaiming that "an admiral of France should die on his quarter-deck." Brueys had hardly expired when the magazine of his vessel took fire, and she was blown into ten thousand fragments.

BRUEYS, DAVID AUGUSTIN DE, a French theologian and dramatist, born at Aix, 1640, died at Montpellier, Nov. 25, 1728. He first embraced the cause of Protestantism, and was subsequently by the influence of Bossuet converted to Catholicism, and henceforth wrote zealously in its defence.

BRUGES (Flemish, *Brugge*), a circle in the Belgian province of West Flanders, with a population of 122,500, and a capital of the same name, the population of which has diminished from 200,000 in former times to about 50,000, of whom not less than 15,000 are paupers. Bruges is connected with



the ocean by the canal of Ostend, and by numerous canals and railways with the other parts of Belgium. It possesses spacious docks and excellent quays, which admit about 100 vessels of 200 to 300 tons. The shipowners of Bruges are engaged principally in fishing and coasting. Lace is the most important branch of manufacture, and there are also manufactories of linen, cotton, and woollen goods, of soap, leather, tobacco, and porcelain. The fine quality of the water in the canals enhances the success of the dyeing establishments. The town presents a quaint and curious aspect, contains about 200 streets, 9 public squares, 54 bridges, and several beautiful fountains. The church of Notre Dame, with a sculptured virgin and child, supposed to be by Michel Angelo, the cathedral of St. Saviour, and the hospital of St. John, are remarkable for the treasures of art and monuments which they contain. The belfry tower in the great square is the finest structure of the kind in Europe, and its chimes, which are the most beautiful in Belgium, sound at every hour of the day and night. Bruges possesses a flourishing free academy of fine arts, a botanical garden, a library, a museum, a fine theatre, an agricultural society, an exchange, a commercial and other tribunals, a gymnasium, and a remarkably large number of charitable institutions. The corporation of weavers of Bruges was celebrated in the time of Charlemagne. From the 9th century till the middle of the 14th, the town was under the sway of the counts of Flanders, who contributed much to stimulate its prosperity, which reached the height of its splendor early in the 15th century, after having passed under the dominion of the dukes of Burgundy. Factories were established here by merchants from 17 states, 20 foreign ministers were accredited to its court. Philip the Good instituted the order of the golden fleece in honor of the remarkable prosperity of the woollen trade of the town. Bruges was then one of the great commercial emporiums of the world, one of the leading commanderies of the Hanseatic league, the centre of resort for English, Lombard, and Venetian merchants, the great mart to which Constantinople, Genoa, and Venice sent their precious argosies laden with eastern produce, Persia its silk, England its wool, and India its spices. The merchants of Bruges had a large share of the business of the globe, while their manufacturers, especially in tapestry, excelled all their contemporaries. A native of Bruges established the gobelins in France under Henry IV.; another, named Berkes, discovered the secret of polishing the diamond. Hans Hemling and the brothers Van Eyck, practised their art at Bruges, and the fine arts had a full share of the general flourishing condition of the town. This great prosperity, however, engendered extravagant habits in dress and social life to such an extent that Charles V. was obliged to pass stringent sumptuary laws. The dominion of the house of Hapsburg proved fatal to the

prosperity of the town. The citizens, who had always been noted for the jealous care with which they guarded their privileges, imprisoned the Austrian archduke Maximilian for violating them, and to punish the town the trade was transferred to Antwerp, and its ruin was finally consummated by the persecutions of the duke of Alva at the end of the 16th century, when many of the inhabitants fled to England, where they introduced some of their native arts and manufactures. The town was on 2 occasions the asylum of English kings: once when Edward IV. fled from England, and again during the exile of Charles II., the latter inhabiting a house which still stands on the south side of the great square, at the corner of the rue St. Amand, bearing the sign, *Au lion Belge*.

BRUGES, HENRI ALPHONSE, vicomte de, a field-marshal under Louis XVIII., born 1764, died Nov. 4, 1820, served in his youth in the English navy in the expedition against Toussaint-Louverture, devoted himself subsequently to the cause of the Bourbons, followed the duke of Angoulême to Spain, and after the battle of Waterloo negotiated with the allied powers on the subject of the prisoners of war.

BRUGES, ROGIER VAN, a Flemish painter and pupil of John van Eyck. He flourished in the middle of the 15th century, and was probably the same person as Magister Rogel, of Flanders, who painted in 1445 three pictures in one, which were presented by Don Juan II. to the Carthusian church at Miraflores. He was one of the few painters of his time who painted on canvas.

BRUGG, or BRUCK, a circle in the Swiss canton Aargau, on the Aar, with 12 parishes, fertile valleys, with manufactures of hosiery and straw goods, and other goods, and a population of 17,800.—The capital, of the same name, with a population of 1,150, is surrounded by walls, defended by conical towers, and is built on a portion of the site of the ancient Vindonissa, some remains of which are still to be seen. In the vicinity are the ruins of the ancient castle of the counts of Hapsburg. The ruined abbey of Königsfelden is in the same neighborhood. The town is the centre of an active transit trade. An old bridge across the Aar at this place is the origin of its name. During the reformation, Brugg was called the *Prophetenstädtchen*, or the little town of prophets, from the many theologians who were born here.

BRÜGGEMANN, KARL HEINRICH, a German journalist, born Aug. 29, 1810, was implicated in the movement of the Heidelberg students of 1830, and for some time detained in prison. Since 1845 he has been editor-in-chief of the *Kölnische Zeitung*, one of the most influential papers in Germany.

BRUGMANS, SEBALD JUSTINUS, a Dutch physician and naturalist, born at Franeker, March 24, 1768, died in Leyden, July 22, 1818. He was first appointed professor of botany and afterward of natural philosophy at Leyden. On the

death of Voltelen he was made professor of chemistry, and in 1795 he was called to assist in organizing the military-medical department of Holland. In 1805 he and some other eminent Dutch physicians published the *Pharmacopœia Batava*; subsequently he was appointed chief physician of King Louis Bonaparte and councillor of state, and on the annexation of Holland to France, Napoleon raised him to the rank of inspector-general of the sanitary department in the French army. About the same period he was also elevated to the rectorship of the university of Leyden. On the accession of the prince of Orange he was made president of the medical departments in the civil, military, and colonial services of the Netherlands. He now re-established at the Hague the central laboratory of chemistry and pharmacy, which he had founded in 1795, but which had ceased to exist. During the campaign of 1815 the humanity of Brumans was eminently conspicuous, and knew no distinction between allies and enemies. He was appointed in 1815 to bring back from Paris the objects of natural history which had been appropriated by the French during their occupation of the Netherlands.

BRÜHL, L. HEINRICH, count, a German statesman, to whom Augustus III. of Saxony was chiefly indebted for the crown of Poland, born in 1700, died in Dresden, Oct. 28, 1768. His obsequiousness and flattery gave him through life complete dominion over the mind of his master. Augustus, on becoming king of Poland, had embraced Roman Catholicism, and Brühl, in order to ingratiate himself still more with his sovereign, presently did likewise. His extravagance exhausted the public revenue, and covered his government with disgrace. On the death of Augustus in 1763, he was dismissed from office, which had such an effect on him, that he died in a few days after. The celebrated palace of Brühl, in Dresden, was named after him. II. HANS MORITZ, count, a nephew of the preceding, born at Wiederau, Saxony, Dec. 20, 1736, died in London, Jan. 22, 1809. He was educated at Leipsic; held a diplomatic position in 1755; was sent to Warsaw in 1759, and in 1764 was appointed ambassador in London. Here he married, and ever afterward made England his home, devoting many years of his life to the study of astronomy and kindred sciences. He built 2 observatories, one in London and the other at Harefield. Through life he was distinguished for great mechanical skill, displayed in the improvement of pianos and chronometers, and in the construction of astronomical instruments. In the various conjunctures for determining the longitude at sea he was particularly interested himself. He corresponded diligently with all the leading astronomers of his day, such as Zach, Fischer, Bode, Lalande, Piazzi, and the elder Herschel. The first named speaks of his patronage of learning and his scientific labors in terms of unbounded praise. In 1808, his infirmities induced him to abandon his astronomical re-

searches and he presented his library and instruments to the Leipsic observatory. He was a celebrated chess player. III. KARL FRIEDRICH MORITZ PAUL, born at Pforten, May 18, 1772, died in Berlin, Aug. 9, 1837. He acquired some celebrity as editor of a theatrical journal, and as a promoter of the drama by private theatricals at Weimar. A performance of Thomas Moore's *Lalla Rookh* took place in the royal palace of Berlin in 1821 under his direction. In the latter part of his life he presided over the royal museum of art in Berlin.

BRUIN, JAN VAN, a Dutch philosopher and mathematician, born at Gorcum in 1620, died in Utrecht in 1675. He was a skilful dissector of animals, an able experimentalist, and an excellent astronomer. He was also a supporter of the Cartesian philosophy, and once engaged in a discussion with Vossius in defence of it.

BRUIX, EUSTACHE, a French admiral, born in St. Domingo in 1759, died in Paris in 1805. He was chosen by Napoleon to take command of the flotilla which was to convey across the channel the army destined to invade England.

BRÜLOW, KARL PAULOWITCH, a Russian painter, born in St. Petersburg, 1799, died near Rome, June 28, 1852. He enjoyed a high reputation in his native country, and officiated for several years as professor of historical painting at the Russian academy of fine arts.

BRUMAIRE, THE EIGHTEENTH. In the new distribution of the almanac, which was attempted, among other more important changes, by the French revolutionists, the 9th of November came to be called the 18th Brumaire. It is famous in history as the day on which Napoleon began to put in execution his project for changing the republic—the fruit of all the agony and blood of the revolution—into a military monarchy. After his return from the East, and his triumphant progress from Fréjus to Paris, 1799, he was indicated no less by circumstances than by his own eminent ability, and his own wishes, as the nucleus of all the disaffected and ambitious elements which conspired for a change of government. France was then controlled by a directory of 5 members, a senate or council of the ancients, and a popular legislative branch, or the council of 500, organized according to the constitution of the year III. As a whole, it was an incapable and inefficient government, and in the general estimation greatly needed improvement. The republicans, with a majority of the council of 500, and Generals Bernadotte, Jourdan, and Augereau, wished to restrain the power of the directory, and discharge Barras, one of its members, but to uphold the constitution; Sieyès, one of the directory, with a majority of the ancients, desired some less democratic organization; Barras and the other directors wished to maintain their own power; while Bonaparte and his brothers, assisted by military officers and certain plotting civilians, were ready for any change, provided the effect of it would

be to throw the supreme power into their own hands. Accordingly the latter formed a conspiracy, with Sieyès and his friends, for the complete overthrow of the government; and to prepare the way for it, they invented reports of dangerous plots on the part of the Jacobins, which alarmed the timid and the friends of order generally. The day set apart for the execution of their scheme was the 18th Brumaire. Sieyès was given the council of ancients to manage; Napoleon undertook the military; and Lucien Bonaparte, who was president of the council of 500, that important body. As a last resort, however, as in all such cases, their reliance was upon the army, with which Bonaparte was an immense favorite. At 6 o'clock on the morning of the 18th, the ancients (with the exception of the republican members, who had not been notified) were assembled at the Tuileries. Sieyès aroused their fears by an animated address on the dangers of the republic, the plots of the Jacobins, and a meditated return of the reign of terror, and persuaded them to transfer the meeting of the legislative bodies to St. Cloud, on the pretence that they would there be out of danger. He also persuaded them to appoint Bonaparte commander-in-chief of the military division of Paris. The removal of the chambers they had a right to effect by the constitution; but this appointment they had no right to make, yet it was made. Bonaparte at once made his arrangements for the disposal of the troops. Sieyès and Ducos resigned as members of the directory; Barras, another member, corrupt and cowardly, made secret terms with Bonaparte and also resigned, whereby the other two members, Moulin and Gohier, were left in a minority. Thus there was in reality no executive government; and the council of 500, which met at 11 o'clock, found that their session had been adjourned to the next day at St. Cloud. On the 19th Brumaire (Nov. 10), the two councils met at St. Cloud. The republican minority of the ancients complained fiercely of the trick by which they had been left out of the proceedings of the previous day, when Napoleon appeared at the bar to justify the action. In the midst of considerable tumult, in which he spoke of volcanoes, conspiracies, traitors, &c., he lost his presence of mind, his language became confused and incoherent, and he did not recover himself till he caught a glimpse of the grenadiers outside, when he threatened the assembly with the army, if it dared to decide against him. In the council of 500 a more violent scene was enacted. Lucien Bonaparte read the resignation of the directors, the assembly shouting: "No Cromwell, no dictator, the constitution forever!" In the midst of the uproar Napoleon entered with four grenadiers. He attempted to address the assembly, which, furious at the outrage inflicted upon it by his presence, interrupted him with cries and clamors. "No soldiers in the sanctuary of the law!" they shouted, and crowded about

the general. He essayed to speak, but being more used to the command of an army than to that of a deliberative assembly, he stammered and hesitated, and could only get out a few broken sentences. At last, a voice from the military outside said, "Let us save our general," and a body of troops rushed in and tore Napoleon by main force from the crowd. No damage appears to have been done in this mêlée beyond tearing the coat of one of the grenadiers. A motion was then made to outlaw Bonaparte; Lucien refused to put it, and then left the chair. At that crisis a body of grenadiers, despatched by Napoleon, entered the hall and carried Lucien off. As soon as he reached the military outside, already somewhat exasperated by the treatment which Napoleon had received, he exclaimed that factious men, armed with daggers, and in the pay of England, had set the deliberations of the representatives of the people at defiance; and that he, as president of the assembly, requested the military to quell the disturbers. The army hesitated, when Lucien swore that he "would stab his own brother if ever he attempted any thing against the liberty of the nation." Murat, at the head of a body of grenadiers, entered the hall and ordered the deputies to disperse. They replied with vociferations and curses, and shouts of "The republic forever!" The drums were then ordered to beat, the soldiers levelled their muskets, and the council escaped by the windows, as it could. Meantime Napoleon repaired to Paris, circulated reports of his having been attacked with daggers, procured a person named Thomé to assert that he had himself received the wounds intended for Napoleon, and in other ways won upon the feelings and affections of the troops. Sure of their support, he was already master of the situation. The council of 500 was dissolved by a vote of some 50 members, who also, in connection with the ancients, passed a decree making Sieyès, Napoleon, and Ducos provisional consuls, invested with supreme executive power. "Thus was consummated," says Mignet, "the final blow against liberty, and from that day brute force commenced its dominion." Others, however, look upon this *coup d'état* as a necessary termination to a reign of anarchy and confusion, although none seek to disguise the fact that it was an act of violence, in which the entire civil polity of a nation was subverted in order to make way for the supremacy of a single man.—(See Bourrienne, *Mémoires de Napoléon*; Thiers, *Histoire de la révolution Française*; Mignet, *Histoire de la révolution Française*; "Annual Register" for 1799; M. de Barante, *Histoire du directoire de la république Française*, 2 vols., Paris, 1855.)

BRUMATH, or BRUMPT, a French town, in the department of Bas-Rhin, on the river Zorn, within a short distance of Strasbourg, celebrated for a number of tumuli in which have been found pieces of wood, a hatchet, a knife, a ring, and some other objects, all of Cel-

tic origin, supposed to be the remains of a Celtic cemetery. The society for the preservation of historical monuments of Alsace caused one of the largest of the tumuli to be explored in 1857.

BRUMMELL, GEORGE BRYAN, commonly called Beau Brummell, born in London, in June, 1778, died at Caen, in France, March 29, 1840. His grandfather, a confectioner in Bury street, St. James's, London, let lodgings and had his rooms occupied for some time by Mr. Jenkinson, afterward the earl of Liverpool, who first made use of his landlord's son as an amanuensis, and finally got him a clerkship in the treasury, which, with 2 other offices conferred on him soon after, gave him an income of £2,500 a year. Soon after the 2d William Pitt became prime minister, the 2d Brummell retired to the country on a competency, with the addition of a pension, and, at his death in 1794, left 2 sons and a daughter, with £65,000 among them. George, the 2d son, was educated at Eton, which he entered at the age of 12, and there acquired distinction, not by ability, scholarship, nor industry, but by peculiar taste in dress. Even then, a mere urchin, he acquired the sobriquet of "Beau Brummell," which was continued to him, not only at Oxford, where he went in 1793, but through his brilliant career in London and during his exile in France. From Eton, he brought the knack of writing Latin verses; contested the Newdigate prize in the university, actually producing the 2d best poem; and was generally believed to be author of the cutting squibs and the practical jokes which were perpetrated in his time. Immediately after his father's death, and at the early age of 16, the prince of Wales, having met him accidentally, took a fancy to him, presented him with a cornetcy in his own regiment (the 10th Hussars), made him his constant companion, and introduced him into the most fashionable society in England. He was an indifferent officer, careless, inattentive, and did not always know his own troop. But, by the favor of the prince, his promotion was rapid. Two years after he entered the service, he was captain. The command of a troop seemed likely to impose trouble on this juvenile captain (scarcely out of his teens), and he threw up his commission, and sold out. Various reasons were assigned, but the probability is to be found in his love of idleness. The death of his father had given him over £30,000, which most men would have considered and employed as a competency. Not so Brummell. He set up a splendid bachelor's establishment in the West End, gave exquisite dinners, at which the prince and the prince's friends "assisted," and before he was of age was a recognized leader of *haut ton*. His chief expenditure was for his house and for dress. He kept only a pair of horses, economically relying on his companions to supply his wants in that respect. As his fortune, though large, was less than his wants, he had to improve it by play or marriage, and laid himself out for

the latter. His appearance was more than passable. His manners, though reserved and often supercilious, could be pleasing and graceful. He made tolerable verses, could draw caricatures, had some musical taste and skill, dressed admirably, and, above all, without aiming at the credit of being a professed conversationalist, had a dexterity and readiness of language which, though neither wit nor humor, was accepted as something better than either. In his dress, the greatest study was used not to exaggerate. *Simplex munditiis* might have been his motto. He employed the best tradesmen, and his patronage, for many years, gave them numerous customers. Brummell's supremacy was disputed for a time by the prince of Wales, on whose wardrobe over £100,000 was expended, until the increasing corpulency of the royal person rendered competition ludicrous. Beau Brummell's reign lasted 21 years, from 1794 to 1815. During this time he associated on equal terms with the highest in the land, royalty included. He was *nonchalant* as well as insolent, assuming a dictatorship to which the noblest and the richest, no matter what the age or sex, appeared happy to submit. A man without education, talent, manners, and money, could not have done this. The three first he undoubtedly possessed, and he had the reputation of still possessing the last, long after the reality had vanished. A man who seriously thought that £300 per annum was not too much for his tailor's bill, and who had no income, would soon see the last of his capital. The wonder is how long Brummell made *his* last. In dress his taste was excellent, and he deserves credit for being the first to substitute the delicate muslin neckcloth, its too flexible nature subdued by a slight starching, for the thick, padded roll which, before his innovation, was invariably swathed around the neck, as a cravat. At last the intimacy with the prince of Wales ceased. Various accounts are given of this rupture. The most popular, but always strongly denied by Brummell, represented him as having familiarly called out in the drawing-room at Carlton house, "Wales! ring the bell," a requisition complied with by the prince, who, when the footman appeared, said, "Call Mr. Brummell's carriage," and so bowed out his quondam friend. Another attributed it to some remark on Mrs. Fitzherbert. The more probable reason may be found in the prince's instability of character. When he was tired of any one, he would cut the acquaintance at once. Beside, as the coolness took place about the time he was made regent, he may have desired to make his circle of associates more select than it had been, when he was simply a man of pleasure. Brummell, however, though his intimacy at Carlton house ceased, still continued the *arbitrator elegantiarum* in London. In July, 1818, he was one of 4 who gave a memorable *fête*. The prince regent, who had intimated his desire to be present, was received by the fashionable *quartette*, and, while he bowed to 8 of the hosts, pass-

ed the 4th by as a total stranger. Brummell, who knew his horror of having his corpulency alluded to, asked, in a most distinct tone, just as the prince passed him, "Alvanley, pray who is your fat friend?" This insolence was dexterous, for it hit the prince on the very spot where he was notoriously thin-skinned. After this, when Brummell's funds began to run low, he became a gambler. Play ran high at the clubs. One night, in 1814, Brummell lost every shilling he had in hand. He raised money at usurious interest, appeared at the opera as usual, and then, entering a friend's carriage, posted off to Dover, and was safe in Calais the next day. His capital was reduced to 25,000 francs, on which, with occasional remittances from his brother in England, he contrived to live for some years. He took his reverses calmly, remarking, in reply to some regrets about his exile at such a place as Calais, "May not a gentleman manage to spend his time pleasantly enough *between* London and Paris?" In 1821, when George IV. passed through Calais, *en route* to Hanover, Brummell made some timid advances, which the king contemptuously disregarded. At last, to place him above actual want, Brummell was appointed English consul at Osen, where he continued for several years, until the office was abolished as unnecessary. Occasional remittances from his family and a few surviving friends in England were seized, to pay a few debts which he had contracted, and at last, reduced to absolute penury, the former associate of royalty and leader of fashion died in a hospital for lunatic mendicants at Osen, at the age of 62. He had spent a quarter of a century in exile, and was only 87 when his reign in London came to a sudden close. Brummell found it very difficult to master the French language, and Byron remarked on the subject that "like Napoleon's progress in Russia, Brummell's progress in French was stopped by the elements." An amusing life of Brummell, by Capt. Jesse, was published in 1844, which gives a graphic account of his whole career, and a fair estimate of his character.

- BRUN, FRIEDERIKE SOPHIE CHRISTIANE, a German authoress, born near Gotha, June 8, 1765, died in Copenhagen, March 25, 1835. She was a daughter of Balthasar Münter, a preacher and lyrical poet, and in her 18th year was married to Konstantin Brun, a wealthy Danish functionary. She accompanied her husband first to St. Petersburg, then to Hamburg, where for several months she enjoyed an intimate acquaintance with Klopstock, and then to Copenhagen. In the winter of 1788, in an excessively cold night, she suddenly lost her hearing, and from that time devoted herself, for many years, to travelling and to literary composition. She became acquainted with many of the most eminent literary persons of her day; passed the winter of 1801 at Coppet, with Madame de Staël, after which she again resided for several years in Italy. She finally returned to Copenhagen in 1810, where

her house was a favorite resort for the literary notabilities of that capital. Most of her works are written in German, comprising poems, travels, and essays on art.

BRUNAI, a Malay state of Borneo, extending from the mouth of Batang-Lupar river in long. 108° 38' E. along the N. W. coast to the bay of Sandakan, adjoining the territories of the sultan of Sooloo. Its inland boundary is a mountain range, at an average distance of 90 miles from the coast, called the Madei and Anga-Anga range, forming an unbroken chain from the head waters of Batang-Lupar to Lake Kuni-Balu, which is in the same latitude with the bay of Sandakan. The coast line is about 900 miles; area, 28,000 sq. m. The state comprises also several extensive islands, Banguey, Balabac, Malawali, Mantanani, Mangkalan, and numerous islets, with about  $\frac{1}{4}$  of the large island of Palawan. Probable pop. of the Bornean portion, 800,000; of the islands, 40,000. The territory of Brunai is mostly covered with a dense tropical forest, accessible only to the Dyaks and orang-outangs; and there has been no communication with the interior, by Europeans or civilized Asiatics, except along its water courses. These are numerous; the mouths of not less than 21 can be counted, which disembogue into the China sea, between Cape Sampuanmanjo and Cape Datoo, all of which are navigable far inland for vessels of light draught of water, and 2, the Rajang and Brunai, for vessels of the largest class. Extensive fields of valuable fossil coal have been discovered on many of these streams, and European companies have commenced their development. The chief exports of native production are pepper, ratans, sago, camphor, birds' nests, bezoar stones, vegetable tallow, ebony, pearl shells, and tortoise shell. Europeans are engaged in the mining and export of coal and antimony, the latter being found in this territory more abundantly than in any other part of the world. The principal imports are European and Bugis manufactured cloths, either plain blue or small checks, brass wire, fire-arms, coarse crockery, unwrought iron in small bars, Chinese urns, iron caldrons, and tobacco. Salt is an important item of import, as on account of the low, alluvial character of the whole coast of Borneo, none is manufactured in the island. The sale of it in this territory is a monopoly of the Malay sultan, as it is of the Dutch government wherever established. There is no money in use, either among Malays or Dyaks; even in the shape of coin it has not yet been employed. The chief standards of value, in the intercourse between the Malays of the coast and the rude Dyaks of the interior, are small bundles of iron rod, of the weight of a Chinese cattie, or  $1\frac{1}{4}$  lb., and pieces of Bugis manufactured checks. Among the Dyaks themselves, smoked human heads constitute the principal medium of exchange. Of the population of this territory, not more than  $\frac{1}{4}$  are Malays, the ruling race. The most of them claim to be descendants of

conquerors, or emigrants from Menangkaban in Sumatra; while a portion are colonists of piratical Lanuns from Mindano and the Sooloo islands, and some Bajaus, or Malay sea gypsies. The government is an absolute despotism; and the present sultan, Omar Saffedin, is claimed to be the 80th in direct line from the first Sumatran conqueror. The aborigines are the Dyaks, the same race found throughout Borneo; and of these there are 40 different tribes in this territory, each one of which speaks a language unintelligible to the others. The Kayans, a tribe of Dyaks found between the Rajang and Baram rivers, cultivate corn and cotton, and employ the buffalo in their agriculture; and Kayan artisans fabricate the best sword and kreese blades in the archipelago. Their mandows and other cutting weapons are famous throughout the East, and are known in Europe. The Serebas, Sakarran, and Kanowit tribes, who inhabit the territory adjacent to rivers of the same name, are noted for their piratical and head-hunting propensities, and figure prominently in the history of Rajah Brooke, who on one occasion, with the aid of British ships-of-war, slaughtered about 2,000 of these tribes. The coal of Labuan and of the mainland of Brunei is of excellent quality for steamship uses, being considered equal to the best Wigan or canal coal. It is mined at a cost of 5s. sterling, or about \$1 25, per ton; and delivered to the government at the pit's mouth for 11s., or \$3 60, per ton. A royalty of 2s. 6d. per ton is paid by the mining contractors.—The sultan of Brunei made a treaty with the United States in 1850, through our consul at Singapore, Mr. Balestier, which secures to Americans an unrestricted residence, and permission to acquire and hold property in Brunei territory; and provides that, except a charge of \$1 per registered ton on American vessels, no other impost shall be levied on their trade; that there shall be no export duties; and that American citizens committing offences, shall be under the jurisdiction of the American consul. Congress has established a consulate at the port of Brunei; but the office has not yet been filled, as no salary was attached to it.—The town of Brunei, and capital of the territory, is situated on the river of the same name, about 14 miles from its mouth, in lat. 4° 55' N., long. 114° 55' E. It is an aquatic city, like Palembang and Acheen in Sumatra; the most of its bamboo houses being afloat, and moored to the banks of the river, or of the canals communicating with it, by strong cables of coir, and gangways of split bamboos. All communication between different parts of the town is by boat. The state processions are in ornamented prahus or barges; the amusements are on the water; infants swim in it before they can walk; the marketing is transacted in fleets of sampans or small boats, that move from one canal to another. Pigafetta gives an interesting account of his visit to Brunei in 1521, and of the reception by the sultan of the Spanish officers of Magellan's expedition. This state

was evidently of much greater consequence at that period than now. He says that the town contained 25,000 houses. Its present population is only about 15,000.

BRUNOK, RICHARD FRANZ PHILIPP, a German philologist and critic, born at Strasbourg, Dec. 30, 1729, died June 12, 1808. He was educated in the colleges of the Jesuits at Paris, served in Hanover as commissary of war, became acquainted at Gieessen with a learned professor, who inspired him with an admiration of the Greek literature; returned at the age of 80 years to Strasbourg, where he studied in the university till he had mastered the Greek language. As an editor he made no commentaries, but occupied himself only with the text. Persuaded that all faults in the language of the Greek poets came from the carelessness of copyists, he corrected the texts with the utmost fearlessness, changing, omitting, interpolating, and transposing with an audacity often happy in respect of taste and sentiment, but censurable in point of criticism. Yet he rendered great service to Greek learning from his accomplished scholarship, and from the circumstance that he held a lucrative official position which enabled him to issue his editions without depending on a publisher. He edited the Greek anthology, all of the tragedies of Sophocles, and several of those of *Æschylus* and *Euripides*, the Greek gnomic poets, and the works of *Anacreon*, *Aristophanes*, and *Apolonius of Rhodes*. His labors were interrupted by the French revolution, whose principles he embraced with ardor. He was imprisoned during the reign of terror, was twice ruined in property, and obliged with tearful eyes to part with his books. From this time Greek letters became odious to him; he transferred his love to Latin authors, and edited *Virgil*, *Plautus*, and *Terence*.

BRUNDUSIUM. See *BRINDISI*.

BRUNE, GUILLAUME MARIE ANNE, a marshal of the French empire, born at Brives-la-Gaillarde, March 18, 1768, died in Avignon, Aug. 2, 1815. His father sent him to Paris to study the law, but on leaving the university, financial difficulties caused him to become a printer. In the beginning of the revolution, together with *Gauthier* and *Journiac* de St. Méard, he published the *Journal général de la cour et de la ville*. He soon embraced the party of the revolution, enlisted in the national guard, and became an ardent member of the club of the *cordilliers*. His grand figure, martial air, and boisterous patriotism, rendered him one of the military leaders of the people in the demonstration of 1791 in the Champ de Mars, which was crushed by Lafayette's national guards. Thrown into prison, and the rumor spreading that the partisans of the court had attempted to get rid of him by odious means, Danton was instrumental in procuring his release. To the protection of the latter, among whose partisans he became prominent, he owed a military appointment during the famous

days of Sept. 1792, and his sudden promotion, in Oct. 12, 1792, to the rank of colonel and adjutant-major. He served under Dumouriez in Belgium; was sent against the federalists of Calvados, advancing under Gen. Puisaye upon Paris, whom he easily defeated. He was next made a general of brigade, and participated in the battle of Hondschoote. The committee of public safety intrusted him with the mission of putting down the insurrectionary movements in the Gironde, which he did with the utmost rigor. After Danton's imprisonment, he was expected to rush to the rescue of his friend and protector, but keeping prudently aloof during the first moments of danger, he contrived to shift through the reign of terror. After the 9th Thermidor he again joined the now victorious Dantonists, and followed Fréron to Marseilles and Avignon. On the 18th Vendémiaire (Oct. 5, 1795) he acted as one of Bonaparte's under-generals against the revolted sections of Paris. After having assisted the directory in putting down the conspiracy of the camp at Grenoble (Sept. 9, 1796), he entered the Italian army in the division of Massena, and distinguished himself during the whole campaign by great intrepidity. Wishing to propitiate the chiefs of the *cordeliers*, Bonaparte attributed part of his success at Rivoli to the exertions of Brune, appointed him general of division on the battlefield, and induced the directory to instal him as commander of the second division of the Italian army, made vacant by Augereau's departure for Paris. After the peace of Campo Formio he was employed by the directory on the mission of first lulling the Swiss into security, then dividing their councils, and finally, when an army had been concentrated for that purpose, falling upon the canton of Bern, and seizing its public treasury; on which occasion Brune forgot to draw up an inventory of the plunder. Again, by dint of manoeuvres, bearing a diplomatic rather than a military character, he forced Charles Emmanuel, the king of Sardinia, and the apparent ally of France, to deliver into his hands the citadel of Turin (July 8, 1798). The Batavian campaign, which lasted about 2 months, forms the great event of Brune's military life. In this campaign he defeated the combined English and Russian forces, under the command of the duke of York, who capitulated to him, promising to restore all the French prisoners taken by the English from the commencement of the anti-Jacobinic war. After the *coup d'état* of the 18th Brumaire, Bonaparte appointed Brune a member of the newly created council of state, and then despatched him against the royalists of Brittany. Sent in 1800 to the army of Italy, Brune occupied 8 hostile camps, intrenched on the Volta, drove the enemy beyond this river, and took measures for crossing it instantly. According to his orders, the army was to effect its passage at 2 points, the right wing under Gen. Dupont between a mill situated on the Volta and the village of Pozzolo, the left wing under Brune himself at

Monbazon. The second part of the operations meeting with difficulties, Brune gave orders to delay its execution for 24 hours, although the right wing, which had commenced crossing on the other point, was already engaged with far superior Austrian forces. It was only due to Gen. Dupont's exertions that the right wing was not destroyed or captured, and thus the success of the whole campaign imperilled. This blunder led to his recall to Paris. From 1802 to 1804 he cut a sorry figure as ambassador at Constantinople, where his diplomatic talents were not, as in Switzerland and Piedmont, backed by bayonets. On his return to Paris, in Dec. 1804, Napoleon created him marshal in preference to generals like Lecourbe. Having for a while commanded the camp at Boulogne, he was, in 1807, sent to Hamburg as governor of the Hanseatic towns, and as commander of the reserve of the grand army. In this quality he vigorously seconded Bourrienne in his speculations. In order to settle some contested points of a truce concluded with Sweden at Schlachtow, he had a long personal interview with King Gustavus, who, in fact, proposed to him to betray his master. The manner in which he declined this offer raised the suspicions of Napoleon, who became highly incensed when Brune, drawing up a convention relating to the surrender of the island of Rügen to the French, mentioned simply the French and the Swedish armies as parties to the agreement, without any allusion to his "imperial and royal majesty." Brune was instantly recalled by a letter of Berthier, in which the latter, on the express order of Napoleon, stated "that such a scandal had never occurred since the days of Pharamond." On his return to France, he retired into private life. In 1814 he gave his adhesion to the acts of the senate, and received the cross of St. Louis from Louis XVIII. During the Hundred Days he became again a Bonapartist, and received the command of a corps of observation on the Var, where he displayed against the royalists the brutal vigor of his Jacobin epoch. After the battle of Waterloo he proclaimed the king. Starting from Toulon for Paris, he arrived at Avignon, on Aug. 2, at a moment when that town had for 15 days been doomed to carnage and incendiary fires by the royalist mob. Being recognized by them, he was shot, the mob seizing his corpse, dragging it through the streets, and throwing it into the Rhone. "Brune, Massena, Augereau, and many others," said Napoleon at St. Helena, "were intrepid depredators." In regard to his military talent he remarks: "Brune was not without a certain merit, but, on the whole, he was a *général d'tribune* rather than a terrible warrior." A monument was erected to him in his native town in 1841.

BRUNEHAUT, or BRUNEHILDE, a famous queen of Austrasia, the eastern kingdom of the Franks, born in 534, killed in 614. The daughter of Athanagild, the Visigoth king of Spain, she married in 568 Siegbert, king of

Austrasia, and abjured Arianism. This marriage was celebrated by Fortunatus, bishop of Poitiers, in a poem still extant. Chilperic, king of Neustria, and brother of Siegbert, also allied himself with the most powerful family in Spain by marrying Galsuinda, the youngest of the daughters of Athanagild. Instigated, however, by his mistress, Fredegonda, whom he afterward made his queen, he soon abandoned and murdered Galsuinda. Brunehaut, eager to avenge her sister, impelled her husband to attack the kingdom of Chilperic, who was obliged to retreat for safety into Tournay. She was expecting to wreak a fearful vengeance upon Chilperic and Fredegonda, when Siegbert was slain in the camp by assassins sent by the queen of Neustria. The Austrasian army was immediately dissipated, and Brunehaut fell into the power of Chilperic, and was conveyed a prisoner to Rouen. There she induced Meroveus, one of the sons of the Neustrian king, to marry her, and favored by Pretextatus, the bishop of Rouen, effected, after a time, her escape to Austrasia, then governed by her son Childbert. At first repelled by the Austrasian nobles, who in the vicinity of the German forests had preserved their rude and independent habits, she yet succeeded in recovering her authority, and obtained ascendancy over the young king. She was, however, obliged to guard against the snares of Fredegonda, who had already slain Pretextatus and Meroveus. In 587 she concluded with Gontran the treaty of Andelot, which fixed the limits between Austrasia and Burgundy. After the death of Childbert in 595, the nobles prevented her from ruling in the name of her grandson, Theodebert II.; but another of her grandsons, Thierry II., received her in Burgundy, and made her mistress of his affairs. She quickly kindled a war between the 2 brothers. Theodebert, vanquished at Toul and at Tolbiac, was slain with his family in 612. Thierry was poisoned mysteriously soon after, and Brunehaut in her old age seemed about to ascend the throne again, when she was opposed by Clothaire II., son of Fredegonda, at the head of an army of Burgundians and Austrasians. She encountered the enemy on the banks of the Aisne, but her troops, secretly corrupted before the battle, refused to fight, and Brunehaut fell into the hands of the son of Fredegonda. The latter reproached her with having caused the death of 10 kings, or sons of kings, exposed her for 8 days to torture and to the insults of the soldiers, and then bound her by a foot and his arm to the tail of a wild horse. Her limbs were collected and burned, and the ashes scattered to the winds. "Thus perished," says Simondi, "one of the most powerful queens who has ever maintained a dominion on the earth; who, though often experiencing adverse fortune, always rose above it by her force of character, indomitable courage, rare talents, and unsurpassed skill in governing men." She has been most diversely judged by historians,

being charged by some with monstrous crimes, and loaded by others with romantic praises. Her contemporaries usually speak of her with favor. Fortunatus praises her grace and beauty; Gregory of Tours mentions her as a model of virtue, wisdom, and gentleness; and Pope Gregory the Great styles her a pious queen and a Christian mother. She was fond of architecture, and lavished immense treasures upon structures of imposing grandeur. The history of the rivalries of Brunehild and Grimhild, in the Scandinavian mythology, and in the chronicles of the Nibelungen, has been thought to reëcho the long quarrel between the queens of Austrasia and Neustria. A tragedy under the title and on the subject of Brunehilde was published by Emanuel Geibel, in 1858.

BRUNEL, SIR MARK ISAMBERT, a renowned civil engineer, born at Haqueville, near Rouen, April, 25, 1769, died Dec. 12, 1849. He was the son of a farmer, was educated at Rouen, studied drawing and hydrography, and in 1786 entered the merchant service, and made several voyages to the West Indies. On board ship he constructed nautical instruments, and, it is said, a pianoforte. In 1793, for political reasons, he fled from France to New York, where he undertook the exploration and survey of some lands for a French land company, and in 1794 commenced the survey of the Champlain canal. He sent in a design for the houses of congress, and was much employed as an engineer and architect in New York, both by the state and by private individuals. After a stay of a few years in America, he returned to Europe, and visited England. His maritime pursuits gave a direction to his engineering genius, and he invented machinery for cutting the blocks used in the rigging of ships, which effected a vast saving both of time and money. The value of this was appreciated by government, and its use for the royal dockyards was secured by a large premium to the inventor. He produced numerous other admirable machines, among others a toy for shuffling and packing cards, as a professional compliment to Countess Spencer. His great work was the Thames tunnel, about 2 miles below London bridge. The difficulties were immense. The stratum between the bed of the river and the London blue clay suitable for engineering operations was so narrow, that in some places only 6 feet was left between the river and the crown of the arch. Consequently, the river broke in frequently and deluged the works. The tunnel was opened in 1843, and must be regarded as an engineering triumph, although as a commercial speculation it is a failure. In his profession he was distinguished by untiring perseverance and inexhaustible fertility of invention. In private life he was universally respected.—ISAMBERT KINGDOM, son of the preceding, born 1806, at Portsmouth. He was educated at the college of Henry IV. at Caen in Normandy, and was resident engineer of the Thames tunnel under his father. Here he had several narrow escapes



of his life from the breaking in of the water. He was long occupied on an engine driven by carbonic acid gas, designed by his father, the use of which as a motive power was abandoned from economical motives, although the machinery was brought to high perfection. At the commencement of the railway system of England, Mr. Brunel threw himself with ardor into the movement. He planned the Great Western, the noblest and most massively constructed line in the world. He designed the broad gauge, on which the highest locomotive speed hitherto known is attainable, which cannot, however, be said to answer in an economical point of view. We believe that he is the inventor of the skew bridge, by which the inconvenience in railway engineering of constructing bridges at right angles with a water or roadway is avoided. Beside being engineer-in-chief to the Great Western railway, and its numerous connecting lines, he was the constructor of the Great Western steamship, the first which regularly traversed the Atlantic, and which traded for many years between Bristol and New York, afterward of the Great Britain screw steamship, and lately of that prodigious result of skill and ingenuity, the *Leviathan*. Mr. Brunel took part in the floating and raising of the Conway and Britannia tubular bridges, constructed some of the most important docks on the English coast, conducted the works of the Tuscan portion of the Sardinian railway, and of other foreign railways, and during the war with Russia he had the entire charge of establishing and organizing the Renkioi hospitals on the Dardanelles. The Box tunnel on the Great Western railway, near Bath, is a fit pendant to his father's Thames tunnel. The Hungerford suspension bridge on the Thames, at London, the largest span in England, is a model of lightness and elegance. As may be inferred from his professional achievements, his activity and industry are absolutely indefatigable, while his enthusiasm and self-confidence are unbounded. On the latter point it is related that when the controversy between engineers on the respective merits of the broad and narrow gauges was at its height, Mr. Brunel offered to drive one of his own ordinary broad gauge locomotives, with a common load, at 100 miles an hour, if any narrow gauge engineer would accept the challenge. None was found daring enough to take it up. The history of this gauge controversy is fully detailed in Mr. Smiles's "Life of George Stephenson." Mr. Brunel is vice-president of the institution of civil engineers and of the society of art, fellow and member of the council of the royal society, and member of many other learned societies.

BRUNELLESCHI, FILIPPO DI SEE LAPPI, an Italian architect, born in Florence in 1377, died there in 1444. He first studied painting and sculpture, and brought the art of perspective to perfection; but as an architect he gained most distinction, having, according to his countrymen, revived the Doric, Ionic, and Corinthian

orders. His great works are the cupola of the church of Santa Maria del Fiore at Florence, the celebrated Pitti Palace at Florence, and the abbey at Fiesole.

BRUNET, JACQUES CHARLES, a French bibliographer, born in Paris, Nov. 2, 1780. The son of a bookseller, he early acquainted himself with rare editions and copies of books, and made several catalogues of old libraries. His most important work is a *Manuel du Libraire et de l'amateur de livres*, which appeared in 1810, and to which a supplement of new bibliographical researches was added in 1884. A 4th edition in 5 vols. appeared in 1842-'44, and a 5th edition has been announced for 1858. The completeness of this work makes it of value to the bibliographers of all countries. In 1852 he published researches upon the original editions of Rabelais.

BRUNETTI, ANGELO, a leader of the Roman democracy in 1848 and 1849, more generally known in Rome under the name of Cicernacchio. A carman by trade, he obtained much influence over the Roman populace, which during the time of the reformatory aspirations of Pius IX. he exerted in the pope's favor, but subsequently in favor of Mazzini, whose cause was to a great extent indebted to Brunetti for its success. After the occupation of Rome by the French, Brunetti removed to Genoa, and subsequently to France. His execution, by Austrian soldiers, was reported in 1856. According to another report he has been seen at a later period, at Kertch, in the Crimea, carrying on a successful trade as a sutler.

BRÜNN (Slavic, *Brno*, a ford), a circle in Moravia; pop. 369,200. The capital, of the same name, pop. 45,000, is situated on a declivity at the confluence of the Schwarza and the Zwittawa, and is connected by railway with Vienna and Prague. The streets are generally narrow and crooked, but are well paved and lighted, and relieved by large open squares, in several of which are fountains. Fortifications separate the city from a number of suburbs. It was formerly defended by the castle of Spielberg, which stands on a high hill just back of the town. This castle was converted into a state prison, and was the place of confinement of Silvio Pellico, and of other political offenders. The last remnants of its fortifications were destroyed by the French in 1809. The city contains many fine buildings, some of the most notable of which are the cathedral, the church of St. James, built between 1314 and 1480, the *Landhaus*, formerly a rich Augustinian convent, the barracks, once a Jesuit college, the city hall, and the palaces of Prince Dietrichstein and Prince Kaunitz. A public park, the Augarten, was opened by Joseph II., and in the public gardens of the Franzensburg quarter is a monument to the emperor Francis I. The Zderad monument—one of the most ancient of Moravia—stands outside of the town. Brünn is a bishop's see, and the seat of the principal law and military courts for

Moravia and Austrian Silesia. A Protestant consistory is also held here. It has a great number of educational, historical, charitable, and scientific institutions, a valuable museum, botanic garden, public library, and provincial bank. It is an ancient place, full of historical associations. The citadel was blockaded by the Hungarians in 947; the town itself was besieged by the Swedes in 1645, and by the Prussians in 1742. It has repeatedly been destroyed by fire, and in 1658 the plague carried off 4,000 of the inhabitants, to whose memory a column has been raised in the great square. Napoleon had his head-quarters here before the battle of Austerlitz, Dec. 1805. A monument in commemoration of the battle of Leipzig has been erected on a neighboring hill called the Franzensberg. Brunn owes its prosperity chiefly to its manufactures and to its facilities for trade, by means of railway communication with Vienna, Prague, Breslau, and Pesth. Its woollen manufactories are the most extensive in the Austrian dominions. Leather, cotton goods, silk, glass, soap, machinery, &c., are also produced in great quantities.

BRUNNEN, a village of the Swiss canton Schwytz, near the mouth of the Muotta, on the lake of Lucerne. It is memorable as the spot where the deputies of the 8 cantons of Schwytz, Uri, and Unterwalden laid the basis of the Helvetic republic, Dec. 9, 1815.

BRUNNOW, ERNST GEORG VON, a German novelist and champion of homœopathy, born in Dresden, April 6, 1796, died there, May 4, 1845. In 1818, while at the university of Leipzig, he suffered from a disease of the eyes, which was cured by Hahnemann's homœopathic treatment, and henceforth devoted himself to the dissemination of the principles of homœopathy. He took a prominent part in the foundation of a homœopathic association in Germany, and translated Hahnemann's *Organon der Heilkunde* into French, and, in conjunction with Stapf and Gross, his *Reine Arzneimittellehre* into Latin. In 1844, he wrote a book called "A Glance at Hahnemann and at Homœopathy," and he is also the author of some lyrical poems and novels, of which his *Ulrich von Hutten* and his *Troubadour* derive some importance from their historical character.—PHILIPP, baron, a Russian diplomatist, brother of the preceding, born in Dresden, Aug. 31, 1797, studied at the university of Leipzig. He entered the Russian service in 1818, and was employed for some time in the office of the governor-general of Bessarabia. Subsequently Count Orloff availed himself of his services in drawing up the treaty of Adrianople, and in other negotiations. He was afterward nominated imperial councillor, attached to the office of Count Nesselrode, and appointed ambassador at Stuttgart and Darmstadt in 1839. In the course of the same year, he was sent on a special mission to London, and, after a brief visit to Germany, accredited there as ambassador in July, 1840, taking part during the following 15 years in many memorable negotiations.

Leaving England Feb. 8, 1854, on occasion of the outbreak of the war with Russia, he was appointed ambassador at the German diet in Oct. 1855, attended in the following year the peace conferences of Paris, as 2d representative of Russia, and was nominated ambassador at Berlin, Feb. 10, 1857, where he remained until the beginning of 1858, when he was again selected as ambassador in London.

BRUNO THE GREAT, archbishop of Cologne and duke of Lorraine, son of Henry I., emperor of Germany, born in 925, died at Reims, Oct. 11, 965. He was distinguished for learning and charity. There are attributed to him commentaries on the Gospels and the Pentateuch, and several lives of saints.

BRUNO, SAINT. I. The apostle to the Prussians, born of a noble Saxon family at Querfurt in 970, succeeded St. Adalbert in his missionary labors, converted the emperor Henry II., and became his chaplain, and was assassinated in 1008 by the pagans of Lithuania. II. The founder of the order of Carthusians, born about 1080 of a noble family at Cologne, died in 1101. Refusing the metropolitan see of Rheims, he forsook the world for the practice of asceticism in the mountain wilds between France and Italy. The order which he founded derives its name from his abode near Grenoble, where he established the rules of a severe austerity. He was invited to Rome in 1089 by Pope Urban II., who had formerly been his disciple, refused the ecclesiastical dignities which were offered him, died in a monastery which he had founded in Calabria, and was canonized in 1514.

BRUNO, GIORDANO, an Italian pantheistical philosopher, born about the middle of the 16th century, at Nola, near Naples, burnt at the stake in Rome, Feb. 17, 1600. Of the earlier events of his life scarcely any thing is known, except that he was a zealous student of Greek and Roman literature, of philosophy, mathematics, and astronomy. He was one of the first to embrace the astronomical theories of Copernicus, which had been spread before the world in 1543. Having entered the order of the Dominicans, his liberal opinions on religious subjects, and his bold attacks on monastic institutions, made him an object of hatred and denunciation. He fled from Italy to Geneva in 1580, but the hostility of the Calvinists there was such that he found himself in a worse condition than before, and once more became a wanderer. After a short stay at Lyons and Toulouse, he went to Paris, where he obtained a certain celebrity by writing a comedy entitled *Il candelajo*, and also by several treatises on the *Arts Magna* of Raymond Lully. In 1588 he went to London, where he gained the friendship of Sir Philip Sidney, and other eminent persons, with whom he had frequent meetings, to which only congenial spirits were admitted. After a residence there of 2 years, he returned to Paris, and in public lectures violently attacked the philosophy of Aristotle, showing an independence of thought

which alone would have made him a heretic; for in those times Aristotle's philosophy had almost the sanctity of religion, notwithstanding the courageous attempts of the spirited Peter Ramus to overturn it. Bruno defended his opinions in public discussions with Hennequin and others, but at last, when he had set up a complete pantheistical system in his writings, Paris became a dangerous place for him, and in 1586 he went to Germany. After a brief stay at Marburg, he settled at the university of Wittenberg as a lecturer on philosophy and mathematics. But his restlessness did not allow him to remain there more than 2 years. In his valedictory address he paid the highest tribute to the genius of Luther, but he declined the pressing invitations which he received to join the Lutheran church as persistently as he had those of the Calvinists at Geneva. For 4 years he went from one German university to another, lecturing now at Prague, then at Helmstädt, then again at Frankfurt, until, in 1592, contrary to the urgent advice of his friends and well-wishers, he ventured to return to Italy. There he remained for 6 years, living in Padua, unmolested by the ecclesiastical authorities, and devoting his time to philosophical researches and literary pursuits. At last, in 1598, when on a visit to Venice, he was arrested by the inquisition, sent to Rome, and kept in a dungeon for 2 years, in the hope that his physical sufferings would make him recant his doctrines. But in this his opponents were mistaken. He would not falsify his opinions even to save his life. Accordingly, he was publicly burned at the stake as a heretic, an infidel, and a breaker of his vows. He died as he had lived. Even when the flames had enveloped him, and life had become almost extinct, he turned his face away in disgust from a zealous monk who held out to him a crucifix.—Bruno was a man of great mental activity, facility and breadth of perception, boldness of thought, and of a vivid imagination, aided by extraordinary power and brilliancy of expression, both in speaking and writing. As a philosopher, his place is upon the dividing line between those devotees of scholasticism and classicism—who, during the first half of the 16th century, cultivated a kind of philosophical speculation, which bore the same relation to true philosophy that alchemy sustains to chemistry,—and the really original thinkers and creators of modern philosophy who appeared in the course of the 17th century. Guided in his earliest reasonings by the Eleatic philosophers, he drew from them his first crude conceptions of the identity of God and the universe. But these ideas were strangely and fancifully blended not only with the mental ecstasies of the Christian mystics, but also with the first vague and imperfect revelations of modern astronomy, with some coarse fragments of astrology, and even with some of the abstruse cabalistic and metaphysical ciphering of Raymond Lully. Thus his philosophy appears as a remarkable compound of strange ingredients,

held together more by the force of intuition than by argument or logic. Still, such as it is, it has proved very captivating, and not without influence on the development of modern thought. Montaigne excepted, there is no philosopher of the 16th century who has been so frequently a subject of research and comment by modern scholars as Giordano Bruno. Descartes has borrowed largely from him, and Spinoza's system would appear almost like Bruno's, refined in the logical crucible of Descartes. Nay, even with some philosophers of the 19th century Bruno has been a favorite. One of the profoundest works of Schelling bears the name of Bruno on its title ("Bruno, or the Divine and the Natural Principle of Things"), and this once more directed the general attention of scholars to Bruno's works, which had become extremely rare. They have been republished since then, those written in Italian by Wagner (*Opere di Giordano Bruno*, 2 vols., Leipzig, 1880), those written in Latin (*Jordani Bruni Nolani scripta quae latine rededit omnia*), by Gfrörer, in his *Corpus Philosophorum* (Stuttgart, 1834). The works of Bruno are numerous and of the most varied character. It has been stated already that he was the author of a comedy which, by the way, was at a much later period considered good enough to be adapted to the French stage. His flashing wit, at least what in those times was honored with that name, and his keen perception of the ridiculous, prompted him to write satires which even now, when the interest in their subjects has entirely passed away, are agreeable reading. Of these, the *Spaccio della Bestia trionfante* ("Expulsion of the Triumphant Beast"), a satire on the immorality of the times, and the *Cabala del cavallo Pegaseo coll'aggiunta del asino Cilenico*, a satirical eulogy on ignorance, were the best. The *Cena delle Ceneri* ("Table-talk on Ash Wednesday") is a spirited dialogue in defence of the Copernican theory. But those of his works in which he has developed his philosophical views in the clearest and most concise form, are the essays, *Della causa, principio, ed uno, Dell' infinito universo, e mondi*, and *De monade, numero, et figura*. In his system there is but one fundamental principle, one substance, whose existence is real and original. This eternal and infinite being produced by contraction or expansion innumerable apparitions whose existence is but secondary, merely a shadow of that of the original being; God and the universe are identical; the universe is infinite. Every being or thing (*ens*) has, beside the innermost principle of its existence, cause of existence. While the former is the permanent condition, the latter is the immediate source of existence. The original cause is the universal intellect which shapes and moulds matter into individual forms. In the harmonious perfection of the universe, all possible forms would obtain real existence in all portions of matter. Every form being the result of intellectual action, and matter being concei-

able only under some form or other, it follows that everything is living or has its soul, which is its form. The substance of all existing beings is one and the same. It is only the forms brought forth by the intellectual activity of the original substance which show differences of appearance. The universe, considered as a whole, is a unit, infinite, immovable, the absolute identity of possibility, reality, and action. This grand unit of all substance, of which all beings and things are only secondary manifestations, is God; God is the monad of the monads. Man, as an intermediate being between time and eternity, belongs to both spheres at the same time, the spiritual and the sensual; but his principal aim is the mind and intellect. The human mind is an integral portion of the divine substance; the perception of the supreme truth, the volition of the supreme good, are its goal. From the narrow sphere of common life, man ought to rise to a higher conception of his relation to the universe, and of the affinity of his spiritual being to the universal intellect. Such is briefly the substance of Bruno's metaphysics and ethics. Beside these, a cosmology forms part of his system. Here his brilliant imagination has been brought largely into use. Some of the strangest theories of old are curiously dovetailed with the modern astronomical systems, the whole embellished with the liveliest colors of poetry. With a vastness of vision not equalled even in the apocryphal *Somnium Scipionis*, he views the whole universe as one immense living being, the different celestial bodies as animals driven upon their eternal course by their immanent souls. He also assumes that these bodies consist of the same elements as the earth, and that they are the residence of redeemed souls, while the infinite ether, in which the stars move, is the substratum of the divine substance. Soaring up higher and higher in visions like these, Bruno at last lands upon the common ground of mystics, pantheists, materialists, and the modern speculative philosophers, namely, that all is necessarily just what it is, nor could by any possibility be otherwise; that therefore all that is, is good, and to a good purpose, because emanating from the eternal good.

**BRUNSWICK.** I. A southern county of Virginia, bordering on North Carolina, watered by the Nottoway, the Roanoke, and the Meherrin rivers, contains an area of 600 sq. m. Its great product is tobacco. It also raises a good deal of Indian corn, some wheat, oats, and sweet potatoes, and 100 or 200 bales of cotton. A large portion of its land is exhausted by the tobacco culture, but has recently been improved by the use of guano. It was organized in 1720. Capital, Lawrenceville. The area was reduced by the erection of Appomattox co. in 1845. Its real estate was assessed in 1850 at \$1,132,649; in 1857, at \$1,553,141, showing an increase of 37 per cent. Pop. in 1850, 13,894, of whom 8,456 were slaves, and 553 free colored. The productions

were 79,287 bushels of wheat, 894,200 of Indian corn, 44,952 of potatoes, 2,155,017 lbs. of tobacco, 80,089 of butter, and 2,889 tons of hay. There were 28 corn and flour mills, 2 saw mills, 5 tanneries, 24 churches, and 186 pupils attending public schools. II. A south-eastern co. of North Carolina, bordering on South Carolina, washed by the Atlantic, drained by Cape Fear and Waccamaw rivers, and comprising an area of about 950 sq. m. The surface is level, and much of it swampy. The soil is poor and sandy, but capable of producing rice and cotton to some extent. The productions in 1850 were 63,229 bushels of corn, 101,017 of sweet potatoes, and 2,687,415 lbs. of rice. Pine timber, tar, and rosin are exported in considerable quantities, and the cypress and juniper grow in the swamps. Capital, Smithville; pop. in 1850, 7,272, of whom 8,302 were slaves.

**BRUNSWICK.** I. A flourishing village in Cumberland co., Me., on the right bank of the Androscoggin river, at the head of tidewater; pop. in 1854, about 4,500. Extensive falls furnish abundant water power; there are many saw mills, a flour mill, cotton factory, machine shop, &c. A wooden truss bridge crossing directly over the falls unites it with Topsham, and a larger bridge of similar construction is used by the Kennebec and Portland railroad, which connects Brunswick with Portland, 27 miles distant; with Augusta, 80 miles; and with Bath, 9 miles. Brunswick, under its Indian name, Pejepscott, was granted to its first proprietors in 1684, but had only very few English inhabitants, who lived by salmon fishing at the falls and kindred pursuits, until nearly a century later, when its immense hydraulic power and the abundance of pine timber in the vicinity attracted numerous speculators to settle there. The manufacture of lumber has since then been their chief pursuit, until, of late years, the scarcity of lumber has induced them to turn their attention to shipbuilding. As Brunswick belongs to the Bath collection district, the ships built there are not registered separately. A large amount of the wealth of the place is invested in ships. There are 5 churches, 2 banks, and an excellent school system. The schools are graded, and attended by all the children of the place. It is the seat of Bowdoin college. (See BOWDOIN COLLEGE.) II. A port of entry and capital of Glynn co., Ga., pleasantly situated on a bluff of no great height, on Turtle river, 80 miles S. S. W. of Savannah. It has a spacious and secure harbor, with 13 feet of water over the bar at low tide, and a lighthouse on St. Simon's island, 8 miles below. The entrance to St. Simon's sound, through which the Turtle river enters the Atlantic, is about 10 miles W. of the town. The tonnage of the district in 1858 amounted to 1,060. The Brunswick and Florida railroad, not yet finished, has its eastern terminus here.

**BRUNSWICK** (Ger. *Braunschweig*), a duchy in the N. W. of Germany. Its area and pop. (1857) are as follows:

	Area, sq. m.	Pop.
1. Brunswick.....	934	68,614
2. Wolfenbüttel.....	290	52,496
3. Helmstedt.....	805	44,687
4. Gandersheim.....	816	42,101
5. Holzminden.....	276	38,586
6. Blankenburg.....	178	22,479
	1,524	269,918

About 240,000 of the inhabitants are Protestants. The general character of the surface is hilly, and in the mountainous districts the climate is severe and the harvests late. About  $\frac{1}{3}$  of the land is arable,  $\frac{1}{3}$  thickly wooded, and much of the rest moorland. The largest rivers are the Ocker, Leine, and Weser, the last of which drains the greater part of the duchy and has many affluents. Brunswick may be divided into the mining districts, which lie chiefly among the Hartz mountains, and the agricultural regions, which comprise nearly all the rest of the country. Grain, fruit, tobacco, flax, cattle, and horses are raised in the latter, while the former are rich in gold, silver, copper, lead, iron, sulphur, and coal. The mines, in some of which Hanover has a joint interest, are not now so productive as in former times, but are still of high value. Other minerals, such as marble, alabaster, limestone, gypsum, potters' clay, asbestos, asphaltum, jasper, and agate, are found in various localities. Salt is obtained in abundance. The manufactures are inconsiderable. The making of linen once employed a number of hands, but is now declining. Spinning is a favorite occupation throughout the duchy, and there are several camelot manufactories, dye-houses, paper, oil, and saw mills, breweries, iron works, and manufactories of lacquered wares and porcelain. The advantages of railway communication with Hanover, Magdeburg, and Neustadt, have given to trade a magnitude scarcely to be expected from the geographical position of the country. The university of Helmstädt was suppressed in 1809, but there are 2 seminaries, 5 gymnasia, 2 normal, 21 Latin, and 869 common schools, and a library at Wolfenbüttel, of considerable repute.—The form of government is a limited hereditary monarchy, the supreme power being vested in the duke and a legislative body of 1 chamber, consisting of 48 members, of whom 10 are chosen from the nobility, 12 from the towns, 10 from the rural districts, and 16 from the people at large. They are elected for 6 years,  $\frac{1}{3}$  going out of office every 2 years. They assemble triennially on convocation by the duke, but in certain cases may meet without his authority. The duchy holds the 18th place in the German confederation, has 2 votes in the plenum assembly, 1 vote with Hanover in the diet of the German states, and contributes 2,096 men to the federal army. Its own force in time of war is 4,857 men. The public debt in 1855 was 7,163,524 thalers, including 4,078,000 thalers for railways, and the budget for the 3 years 1855-'6-'7 presented an aggregate revenue of 4,219,000 thalers, and the same aggregate amount of expenditure.—The capital of the

above-described duchy, of the same name, is situated on the Ocker, and connected by railways with the other cities of Germany. It is said to have been founded in the 9th century, by Bruno, was enlarged by Henry the Lion, ranked in the 13th century among the first cities of the Hanseatic league, and, although much less important than in former times, it continues to be one of the most active cities of N. W. Germany. The annual fairs held here are, after those of Leipzig and the 2 Frankforts, the most animated in Germany. The pork sausages of Brunswick (*Braunschweiger Wurst*), and its beer, have acquired great celebrity; the latter is known under the name *Braunschweiger Mumme*, after Christian Mumme, who was the first to prepare it, in 1492. The trade in this beer extended in former years to East India. The book trade is of great importance. The principal publishing house is that of Vieweg. Brunswick is the seat of a bank and of several banking establishments. The appearance of the town is antiquated, but there are several handsome streets and promenades. The new ducal palace is a magnificent building, with beautiful pleasure grounds. The most interesting monuments of the ancient cathedral of St. Blaise are the tombs of the ducal family, comprising that of Caroline of Brunswick, queen of George IV. There are 10 churches and a synagogue. The museum in the arsenal contains a gallery of valuable paintings. There are also many private galleries. The most prominent of the institutions of learning is the *Collegium Carolinum*, which was founded in 1745. Monuments have been erected to the 2 dukes of Brunswick who fell at Jena and at Quatre Bras; to the memory of Schill and his companions, 14 of whom were shot here; and to Lessing, who died here. Rietschel's statue in honor of Lessing was erected in 1853. The most extensive of the many charitable and sanitary institutions is a great asylum which accommodates 250 orphans. The town supports a good theatre and several journals, of which the *Deutsche Reichszeitung* is the best. Pop. about 38,000.

BRUNSWICK, HOUSE OF, one of the oldest families in Germany, a branch of which occupies the throne of Great Britain. The territory which now forms the duchy of Brunswick formerly belonged to the part of Saxony which Charlemagne united to his empire. With the other Saxon provinces it was governed successively by the princes of the houses of Saxe, Billung, Supplinburg, and Guelph. The Guelph house, of Italian origin, obtained, in the person of Otho the Young, in 1235, the city of Brunswick, as a fief of the empire, which, with its dependencies, was then first erected into a duchy. The 2 sons of Otho, Albert and John, reigned in common from 1252 to 1267, and then divided the paternal inheritance. John received the city of Hanover and the duchy of Lüneburg; Albert, the duchy of Brunswick, the Hartz, and the district of the Weser; the city

of Brunswick remained common property. John and Albert thus founded the elder branches of Lüneburg and Wolfenbüttel. The first of these became extinct in 1869, and its possessions returned to the line of Wolfenbüttel. Albert left 3 sons, Henry, Albert the Great, and William, who divided the inheritance, and founded the 3 lines of Grubenhagen, Göttingen, and Wolfenbüttel. The first of these divided into 2 branches in 1861, both of which became extinct in 1896, and their possessions returned to the line of Wolfenbüttel. The Göttingen branch became extinct in 1463, and its possessions were transferred to the duke of Kalenberg. From the Wolfenbüttel branch sprang in 1409 the 2 new branches of Lüneburg and Wolfenbüttel-Kalenberg, the latter of which in 1634 transferred its possessions to the duke of Brunswick-Lüneburg-Dannenberg, a descendant of the Lüneburg branch. The Lüneburg branch had divided in 1569, and had another offshoot in the family of Brunswick-Lüneburg, which has furnished the electoral and royal dynasty of Lüneburg-Hanover. Henry, duke of Brunswick-Lüneburg-Dannenberg, who died in 1598, was the founder of the present dynasty of Brunswick. His line was divided in 1666 into the branches of Brunswick-Wolfenbüttel and Brunswick-Bevern, the former of which became extinct in 1785, the possessions passing to the latter, which has retained them undivided from that time to the present. Among the queens belonging to this family have been Sophia Dorothea, wife of George I., king of England; Amelia Elizabeth Caroline, the wife of George IV.; and Sophia Charlotte and Sophia Dorothea, queens of Prussia, the latter the mother of Frederic the Great. The first wife of Leopold, the present king of the Belgians, was Charlotte Augusta, daughter of Queen Caroline of England.—BRUNSWICK-LÜNEBURG, ERNST, duke, born in 1497, died in 1548, embraced the doctrines of Luther, signed the confession of Augsburg, adhered to the Smalkaldian league, and had his eulogy pronounced by Melancthon.—BRUNSWICK-LÜNEBURG, CHRISTIAN, duke, born in 1599, died in 1626, was attached during the 30 years' war to the elector palatine, Frederic V., who became king of Bohemia. After the flight of that prince he ravaged Hesse and the electorate of Mentz, was defeated by the imperialists on the Main, entered the service of the Dutch in 1622, forced the Spaniards to raise the siege of Berg-op-Zoom, but was afterward again defeated by Tilly. His motto was, "Friend of God, enemy of priests."—BRUNSWICK-LÜNEBURG, ERNST AUGUST, duke, elector of Hanover, born in 1620, died in 1698, served the emperor Leopold I. in his war against France, for which he was rewarded with the electoral dignity in 1692. By his marriage with Sophia, daughter of the palatine Frederic V., and granddaughter of James I., king of England, his house obtained a right to the throne of England. His son, George Louis, subsequently became king of

England, with the title of George I.—BRUNSWICK, FERDINAND, duke, a celebrated general in the 7 years' war, born at Brunswick, Jan. 11, 1721, died July 8, 1792, entered the Prussian army in 1739, assisted at the capture of Prague, obtained in 1757 the command of the Anglo-Hanoverian army, defeated the French and Hessians at Minden and at Crevelt, and in 1768, by reason of a disagreement with the king, retired to his castle at Vechelde, where he occupied himself with freemasonry, and became grand-master of nearly all the lodges in Germany.—BRUNSWICK, KARL WILHELM FERDINAND, duke, a Prussian general, born at Wolfenbüttel, Oct. 9, 1785, died near Altona, Nov. 10, 1806. His services during the 7 years' war were celebrated by Frederic the Great in a poem. He participated in the battle of Crevelt in 1758, and in 1787 marched into Holland to restore the hereditary stadtholder. After the treaty of Pilnitz he was intrusted with the command of the allied armies against France. He published at Coblenz in 1792 his famous manifesto, intending to march directly upon Paris, cut off supplies, and reduce that city by famine. He penetrated into Champagne, but was obliged, after the engagement at Valmy, to conclude an armistice with Dumouriez. In 1793 he commanded the army of the Rhine, reappeared in 1806, after an interval of retirement, at the head of the Prussian army, commanded at Jena, and was mortally wounded at the battle of Auerstädt. He was thought to have aspired to the crown of France after the fall of Louis XVI.—BRUNSWICK, FRIEDRICH WILHELM, 4th son of the preceding, a Prussian general in the Napoleonic wars, born Oct. 9, 1771, perished in the battle of Quatre-Bras, June 16, 1815. At the head of a body of hussars, which he raised in Bohemia, he entered upon the campaign of 1809, was obliged by Reubel to retreat, and to take refuge with his army in England, where he was received with distinction, returned to his country in 1818, and took part in the battles of Ligny and Quatre-Bras.—BRUNSWICK, FRIEDRICH AUGUST WILHELM KARL, the eldest of the 2 surviving members of the eldest line of the Guelphs, son of the preceding, born at Brunswick, Oct. 30, 1804, succeeded his father, under tutelage, in 1815, took the government into his own hands, Oct. 30, 1823, was obliged by an insurrection, Sept. 1830, to seek safety in flight, was declared incapable of governing, and from that time has lived alternately in Paris and London.—BRUNSWICK, AUGUST LUDWIG WILHELM MAXIMILIAN FRIEDRICH, younger brother of the preceding, the reigning duke, born April 25, 1806, succeeded to the duchy after the expulsion of his brother in 1830, rebuilt, in 1833, the castle of Brunswick, which had recently been burned, and founded in 1834 the order of Henry the Lion. As this prince is unmarried, the duchy of Brunswick, at his death, will be reunited to Hanover.

BRUNSWICK GREEN, a compound of chloride and oxide of copper and water, pre-

pared by oxidizing metallic copper in the air, by sprinkling it with a mixture of sulphate of copper, common salt, and water. It is also generated by the corrosion of copper in seawater. Its composition, as given by Berzelius, is 1 equivalent of the chloride and 8 equivalents of the oxide of copper. An artificial bicarbonate of copper, or mountain green, is also sometimes called Brunswick green. They are both used as pigments.

BRUNTON, MARY BALFOUR, an English novelist, born in the island of Barra, Nov. 1, 1778, died in Edinburgh, Dec. 19, 1818. At the age of 20, she married the Rev. Alexander Brunton, a minister of the Scottish church, and subsequently professor of oriental languages in the university of Edinburgh. She published a novel, "Self-Control," in 1801, which obtained immediate popularity from its moral tone, as well as its literary merits. This was followed by "Discipline," in which the same moral purpose is kept in view. Some months after her death, her husband published a volume of her "Remains," containing "Emmeline," a fragment in 100 pages, with a few shorter sketches, prefaced by a memoir of her life, with extracts from her correspondence. This fragment is written with great power, but so revolting is the subject, and so painful would have been the task of completing the story, that many critics have doubted whether she could have carried it to the close.

BRUSASORCI (DOMENICO RICCIO), a Venetian painter, born at Verona in 1494, died in 1567. He painted principally in fresco, and chose mythological subjects. At Verona he painted his celebrated "Coronation of Charles V." and the "Procession," in which appear the portraits of the emperor, Pope Clement VII., and other distinguished personages of the time. He also painted "Phaëton," in the ducal palace at Verona, and the "Martyrdom of St. Barbara."

BRUSH, a common name for a variety of implements, employed, some for removing dirt, some for smoothing and polishing surfaces of objects by rubbing, and some for laying on colors. They are usually made by inserting the bristles or hairs of animals in a firm support, which holds them in their proper arrangement, and at the same time serves as a handle. The great proportion of brushes, as nearly all the various kinds used for house purposes, including house painters' and whitewashers' brushes, and those employed about the person and clothing, as hair, tooth, clothes, shoe-brushes, &c., are manufactured of the bristles of the hog. They cause so large a demand, that bristles have become an important article of commerce. The great hog markets of the western states furnish the brush manufacturers of this country. England is supplied from Russia, the bristles from the Ukraine being preferred as superior to others. They are also imported from France, Germany, and Prussia. Previous to March, 1845, when the duty was repealed, the annual importations amounted to about

1,800,000 lbs., of which all but about 800,000 lbs. were from Russia. After this time they immediately exceeded 2,400,000 lbs.—The first process of the brush manufacturer is to sort the bristles according to their colors, unless he obtains them thus assorted. The divisions are into black, gray, yellow, white, and lilies. The last are the purest white, and are preferred for tooth and shaving brushes. Each kind is then assorted according to size, which is done by passing a bunch of them, held in the hand, between a row of steel points, like the teeth of a comb, which catch the coarser bristles. By using a succession of these combs of increasing fineness, the bristles are separated into as many heaps as desirable. Care is taken to keep them always arranged uniformly, the large or small ends of all pointing the same way. The cylindrical brush used by house painters is made by taking a bundle of bristles, and tying them firmly around their root ends. This bundle is then strongly bound between 2 prongs of a forked stick, and covered with a coating of glue and red lead. Another and more common method is to arrange the bristles around the small end of a conical stick, the small ends of the bristles pointing to the larger end of the stick. These being well secured by twine wrapping, and placed in a cup or socket with a hole in the bottom to let the handle pass through, this is driven home till the large end is buried in the centre of the bundle, tightening the fastenings and thoroughly securing the bristles.—The delicate brushes, called also hair pencils, used for water-colors, are made of the hair of the camel, goat, badger, sable, squirrel, &c., by binding a bundle of them together after being carefully arranged, and their points temporarily protected, and sliding this through the larger end of a quill, till the points project sufficiently far through the smaller end. The tube, having been previously softened by water, contracts as it dries, and holds the bundle of hairs fast. The best brushes of this kind are made of the hair taken from the tail of the kolinkski, a Russian sable.—Brushes, except those used for painting, are made for the most part by inserting little tufts of bristles into holes bored in rows into a stock of wood, bone, or ivory. The bristles are in some kinds secured by dipping their root ends into hot pitch, winding a piece of string round these ends, then dipping them again, and quickly introducing them with a twisting motion into the holes, where the pitch soon sets and holds them. The small ends of the bristles may be trimmed, and the stiffness be thus somewhat increased; but all such brushes are much softer and more flexible than those made by taking that portion of the bristle near the root end, and doubling it, so that it presents at one end a loop for securing it, and at the other 2 stiff points. For these the stock or board is sometimes prepared by boring the holes not quite through of the full size, but finishing them with a small bit. Each hole is correctly made in its proper place by a scale or pattern board,

of which great numbers are kept already perforated on hand, and one of which is clamped upon the face of the stock to be drilled. Each hole in the pattern is a mark for introducing the drill. Fastening the bristles is called drawing, and is commonly performed by women. They sit around a table, each with a clamp attached to its edge for holding the stock-board, and each supplied with a fine flexible brass wire which is held in the right hand, and an apron full of bristles. A loop of the wire is passed through a hole in the stock, and a number of bristles being laid in it, the wire is pulled tight, causing the bristles to double and be drawn into the hole. The same process is repeated with the next hole, and so on, until all are filled with bristles, which are held tightly in their places by the wire. They are then clipped by a pair of shears gauged to cut the length of bristles required. If the bristles are very long, the clipping is done as each row of holes is drawn. Persons skilled in this process have drawn as many as 500 tufts in an hour; but 100 an hour is a more common rate. In brushes that are to be exposed to acid liquors, that would corrode brass wire, as the stopping brush used by hatmakers, a cord is substituted. The brush is finished by gluing a thin veneer upon the back of the stock, which covers over and protects the wire. This, however, is still liable to corrode, if the brush is kept wet; but even if it rusts off, the tufts remain in their places, unless the wood gets very dry and shrinks, when they fall out. Other methods of drawing are employed in making the fine tooth and nail brushes. One is to secure the fine silver wire (which is used instead of brass) in grooves upon the back of the stock, and fill these with a hard cement. A still neater mode is that called trepanning. The holes for the tufts are not drilled quite through the stock, but terminate in other longitudinal or transverse channels, which are perforated either edgewise or lengthwise close to the surface of the back of the stock. Of these channels there are as many as there are rows of tufts. Strong thread or silk supplies the place of wire, being introduced through the long channels to the holes, and then drawn. The mouths of the channels are finally closed with little plugs of bone or ivory, so neatly that they are rarely observed, and the work is then as durable and cleanly as if it were all one piece. There is a kind of brush used for cleaning bottles and some other purposes, made by introducing bristles between 2 or more parallel wires and twisting these together, which causes the bristles to radiate from the wires and form a brush of cylindrical shape.—Other materials used for brushes are horse-hair and goats' hair for some soft brushes, as hat brushes; the hair of the badger for shaving brushes; and for very hard brushes, fibres of whalebone and even wire. The whalebone is first softened by steeping it in water, and is then shaved into thin slices, which are split into fibres. These are cut into proper lengths, and

when dried are used like bristles. Wire brushes are employed for scrubbing the surfaces of metals preparatory to their receiving any coating, as silver, copper, or brass, for gilding, iron gun barrels in the process of browning, &c. &c.

BRUSH TURKEY, a local name given by the colonists of Australia to a family of birds, the peculiar habits of which are, in many respects, among the most remarkable facts known in the history of the animal kingdom. In scientific nomenclature the several varieties of this group are now assigned to the family of *megapodiidae*. There are but about 12 species in all known to belong to this family. All of these are restricted in their range to the eastern archipelagoes of Asia, and to Australia, especially to the latter. The *megapodiidae* are now by general assent assigned to the order of *galinæ* of the class *aves*—*rasores* of some authors. They are again subdivided into the sub-families of *tallegallina* and *megapodiina*. They are also known, both locally and in the works of authors, as New Holland vultures, native pheasants, and jungle fowl. To the most noticeable of this group, *tallegalla Lathamii*, the name of brush turkey is chiefly applied—a name derived from the facility with which it eludes pursuit by running through tangled brushwood. Some disagreement has existed among systematists whether it should be classed among the true vultures, or among gallinaceous birds. Since Swainson, however, who persisted in classing it among the *vulturina*, no one has hesitated to place it among the *galinæ*, where its gregarious habits, and close connection with other genera whose place is indisputable, combine to fix it beyond all reasonable dispute. The most remarkable circumstance in the economy of this family is the manner in which the hatching of their eggs is effected. In some respects this is not unlike that of the ostrich, but is upon an entirely different principle. The brush turkey, when about to deposit her eggs, collects an almost incredible heap of decaying vegetable matter as their depository, and trusts entirely to the heat engendered by the process of decomposition for the development of her offspring. The heap is collected for this purpose, not by single pairs, but by the joint labors of several, and usually at an interval of several days previous to laying. These heaps are frequently so large as to contain 4 cart loads of materials thus collected, and are constructed in a perfectly pyramidal form. If undisturbed, the same site is resorted to year after year, the birds adding each season a fresh supply just before the period of laying. After the heap has thus been accumulated, and a sufficient time has intervened for the generation of the required heat, the eggs are deposited, some 12 inches apart, and all buried to the depth of 2 or more feet. They are uniformly placed with the larger end up, and in this position, carefully covered, are suffered to remain until they hatch. The chick, when produced, is fully feathered, and able to provide for its own wants from the shell. The



number of eggs deposited in a single heap is often very great. As many as a bushel are frequently taken from one of these collections, at a single time. From experiments that have been made in heaps collected by birds partially domesticated, the heat of their centre has been ascertained to range as high as 95° F. The *leipoa ocellata*, another of this interesting group, deposits her eggs in mounds of sand alternating with layers of dried leaves and grasses. The eggs, as they are laid, are carefully covered up, but the parent birds never sit upon them. The rays of the sun, adding to the heat engendered by vegetable decomposition, supply the requisite means. According to Gray, this species deposit about 12 eggs each. These are separated by vegetable matter or by earth, and the whole, soon after they are laid, are covered up by a large heap of sand, scratched up by the pair and forming a mound 9 feet in diameter and 3 in height. The *megapodius tumulus* employs yet another, though analogous manner of hatching her eggs. This species construct large mounds of earth for the development of their ova. Well-authenticated accounts describe these mounds as often of an immense size, varying from those of 20 feet in circumference and 5 in height, to those of a diameter of 20 feet and a height of 15. In these the eggs are carefully covered up by the parent birds, and buried often to the depth of 6 feet. Other species of this family are found in nearly all the islands of the eastern archipelagoes of Asia. Some of these merely deposit their eggs, in large numbers, in holes excavated on the sea-shore, to the depth of 2 or 3 feet. Nearly all the family, however, are more unequivocally mound-builders.

BRUSSELS, (Flemish *Brussel*, Fr. *Bruxelles*), the capital of Belgium, situated on the little river Senne. Lat. 50° 51' N., long. 4° 22' E. Pop. in 1857, including the suburbs, 166,801, showing an increase of about 16,000 over the preceding year, owing to the annexation of the fashionable and stately *quartier Léopold*. In the new town there are the royal palaces and the mansions of the nobility, the park, public promenades (the *Allées vertes* being the most popular), the chambers of the legislative bodies, and the libraries and museums occupying the former residence of the Austrian viceroys; while in the old town there are the churches of the 14th and 15th centuries, with their superb oak carvings, stained glass windows and statues, the *hôtel de ville*, and the mansions of the former nobles and burghers of Brabant. The principal church is that of St. Gudule, an immense and ancient building in Gothic style, with 2 very lofty towers. The choir and transepts, as at present existing, were finished in 1278, the nave in the 14th century, and the towers in 1518. Its windows are filled with the richest stained glass in the Netherlands, and it contains a number of costly monuments of the dukes of Brabant. The high altar in this church is so arranged that by some ingenious machinery within, the sacred wafer descends apparently of itself, at

the moment when the priest is about to elevate the host. The pulpit is one of those wonderful specimens of Flemish oak carving. Another most interesting monument of the middle age is the *hôtel de ville* in the *grande place*, a vast structure commenced in 1401. Its tower, of Gothic open work, rises to the height of 364 feet, and is crowned by a vane representing the figure of St. Michael, in gilded copper, 17 feet high. It is frequently stated, but erroneously, that the abdication of Charles V. took place in this edifice. The real scene of that strange pageant was the old ducal palace, burnt down in 1738, and which stood on the site of the *place royale* in another part of Brussels. The appearance of the ancient square, on one side of which is the *hôtel de ville*, and the others surrounded with the old Spanish buildings and the *Broodhuis* or *maison du roi*, is much the same as in the days of the duke of Alva. In this *Broodhuis*, Counts Egmont and Horn passed the last night prior to their execution, and from a window of the same building Alva looked upon the bloody spectacle. The square of the *hôtel de ville* has been the scene of nearly every popular commotion that has agitated Brabant. Within the present century it has swarmed with soldiers; as in 1815, when Wellington marched from Brussels to Waterloo, and 15 years later, during the revolution which resulted in the independence of Belgium. In the *place du petit sablon* the Protestant confederates assembled to draw up their remonstrance to Margaret of Parma, regent of the Netherlands, and half sister to Philip II. The *palais des beaux arts*, formerly the regal residence of the Austrian governors, contains a very large collection of paintings, few of which, however, are remarkable; a *palais d'industrie*, or museum of models of machinery and inventions in the mechanic arts; and a noble library founded by the dukes of Burgundy in the 14th century, and enriched by successive sovereigns, which now contains 200,000 printed volumes, and 18,000 MSS., many of the latter superbly illuminated. A museum of antiquities attached to the building contains numerous curiosities. The private palace of the duke d'Arenberg is widely known for its exquisite pictures, library, objects of *vertu*, and a head supposed on the best authority to be the original of that of the central figure in the group of the Laocoön. The head in the Vatican, at one time in Paris, is a restoration, and for the one in possession of the duke d'Arenberg Napoleon offered weight for weight, gold for marble. The palace of the prince of Orange, formerly considered the richest residence in Europe, has of late years been dismantled, and its contents removed to the Hague. The picture gallery of the prince de Ligne abounds with remarkable pictures. The *galerie St. Hubert*, a splendid bazaar, extending from the *marché aux herbes* to the *rue de l'évêque*, was completed in 1847. An observatory was built in 1828. The academy of science and the *conservatoire de musique*, and other institutions of learning and art, are in a flourishing condition. There is a cer-

*charitatives et littéraires*, where lectures are delivered during the winter season; a *grand harmonie*, a *philharmonie*, and a *concert noble*. There are 6 public schools, 6 schools for poor children, and an equal number of institutions of learning supported by private means and by religious associations. The most extensive of the many charitable institutions is the *hôpital St. Ille*, with 600 beds. Brussels is the seat of the *société générale*, a bank which had charge of the public finances until May 5, 1850, when the *banque nationale* was founded. There are several other important banking establishments. In the stock exchange of Brussels a large amount of speculative business in foreign and national stocks, and railway and industrial shares, is carried on. Until 1854, when the reprinting of French works was stopped by law, Brussels derived considerable importance from this branch of the book trade. The book trade of Brussels, however, is still one of the most flourishing branches of activity of the town, Belgium continuing to be the largest importer of French books. A complete system of railroads connects Brussels with all parts of the kingdom. Manufactories of a great number of commodities are carried on here. Brussels lace is still celebrated, although this branch of industry has declined considerably. It excels most in the manufacture of looking-glasses and other objects made of glass and crystal, in the fabrication of carpets, and, above all, in that of carriages. The breweries of Brussels are noted for their successful imitation of Bavarian, English, and Scotch beer, and for a sort of beer called *fove*, and another sort of white beer called *bière de Louvain*. The theatre on the *place de la monnaie* was destroyed by fire Jan. 21, 1855, and rebuilt in 1856. There is a *théâtre des nouveautés* on the *boulevard de Laeken*, and a *théâtre du vaudeville*, *rus de l'évêque*, chiefly for Flemish plays. There are also a Vauxhall, a beautiful botanical garden, a smaller theatre in the park, a circus, and a large number of splendid coffee-houses. English church service is performed in 3 chapels, and the bookseller Mugardt, in the *place royale*, has a reading room for English and foreign newspapers, and an English circulating library. The concourse of strangers and residents of all nations is daily increasing, and contributes not a little to the prosperity of the Belgian capital. French is the conventional language of polite society in Brussels; but the names of the people, and even many educated persons, retain the use of the Flemish and Walloon languages. The principal Belgian journals are issued at Brussels, the *Indépendance Belge* being the best known abroad. A journal in the Russian interest, *Le Nord*, is also published here. The *place des martyrs* contains a monument erected on the grave of about 800 victims of the revolution of 1830. Margaret of Austria was born in Brussels, as was Vesalius, the anatomist, to whom a statue has been erected in the *place des barricades*.

BRUTUS, DECIMUS JUNIUS, a Roman soldier,

executed 48 B. C. He served under Cæsar in the Gallic war, and in the civil war he commanded the fleet destined to besiege Massilia. Cæsar afterward appointed him to the government of further Gaul. Nevertheless he joined the conspiracy against Cæsar, and volunteered on the memorable ides of March to conduct his friend and benefactor to the place of slaughter. When the tragedy was consummated, Decimus Brutus retired to Cisalpine Gaul, and there maintained himself for some time, but was ultimately deserted by his troops, betrayed to Antony, and put to death by order of that general.

BRUTUS, LUCIUS JUNIUS, sometimes called the Elder, to distinguish him from Marcus Junius, the slayer of Cæsar, lived about 500 B. C. According to the legend, he was the son of Marcus Junius and the elder daughter of Tarquin the Proud, the last king of Rome, and is represented as having saved his life from the cruelty of that prince by feigning idiocy, whence he received the surname of Brutus. Yet we find him not only described as not persecuted, but trusted and favored by the king, who associated him with his own sons, Aruns and Titus, in a mission which he sent to Delphi to inquire into the meaning of a portent, which had caused much alarm at Rome. After receiving the reply to the question they were charged to propound, the young men thought it prudent to do a little vaticination on their own account, and inquired of the oracle which of the 3 should be king in Rome, no one of them being, it is observable, heir to that dignity. To this the voice replied, from the sanctuary: "Whichever shall first kiss his mother." So, on their return to Italy, Titus and Aruns ran emulously to the palace, seeking who first should embrace the queen mother; but Lucius Junius, as he landed from the galley, affected to stumble from the gang-plank, and falling prostrate, kissed the soil of Rome, and arose up satisfied that he had penetrated the meaning of the oracle, and had secured to himself the succession to the throne. Shortly afterward followed the rape of Lucretia, the wife of his cousin Tarquinius Collatinus, by Sextus, and the self-immolation of the injured lady, in the presence of her father, who brought with him Publius Valerius, and of her husband, with whom came Lucius Junius. All swore to avenge her wrongs, but Brutus drew the reeking weapon from the wound, and holding it on high, vowed to visit the deed upon King Tarquinius, and upon all his race, and to take rule that no man hereafter should be king in Rome. First the people of Collatia, where the deed was done, and then, when they heard of it, those of Rome in their *curia*, and lastly the army, which lay before Ardea, ratified the deed; and the Tarquins, being expelled by universal consent, fled to Gabii and Cære. The people met in their centuries, to elect 2 men who should govern the city in lieu of kings, whose tenure of office should be annual, and whom they called consuls; and they chose

Lucius Junius and Lucius Tarquinius of Collatia, thence called Collatinus, to be the consuls of the first year. But, shortly afterward, on reflecting that the second magistrate was still a Tarquin, the people took alarm, and requested him to abdicate his office, and withdraw from their city in all honor, that they might be liberated from their apprehensions, and no longer have a Tarquin ruling over them. He did so, and they elected Publius Valerius to be consul in his room, who received the name of Poplicola, from his popularity. But, after all seemed settled, some of the young men of Rome, of noble birth, regretting their ancient government, and averse to the republican simplicity which had supplanted the royal usages, conspired to bring back the Tarquins, and to reestablish royalty in Rome; and the sons of Lucius Junius, Titus, and Tiberius, were among the conspirators. The plot was discovered by a slave, and Lucius Junius sat in judgment on his own sons, and did not hesitate to do justice on them, but caused them to be scourged with rods, in accordance with the law, and then beheaded by his lictors, in the forum; and he neither turned aside his eyes, nor shed any tear over them; for they had been false to their country, and offended against the law; and "a man," he said, "may have many more children, but never can have but one country, even that which gave him birth." When the conspiracy was discovered, and so proved of no avail, for bringing back the Tarquins, that proud and daring family determined to return by force; and, with the favor of Porsena, king of the Etruscans, and Mamilius, prince of the Latins, and the vassals of their own family from Cære, and Agylla, and Tarquinii, they raised a great army, and invaded the Roman territories. It so chanced that Aruns, son of Tarquin, and Lucius Junius, the consul, encountered in advance of the main bodies of the army, at the head of detachments of horse, and riding at each other with levelled lances, transfixing each other, and both fell down dead. Then the cavalry met, and fought fiercely; but it was a drawn battle, and neither party had clearly prevailed in the fight, and both encamped on the ground face to face. During the night there came a great voice, greater than human, out of a wood hard by, making proclamation that "one man more had fallen on the part of the Etruscans than on that of the Romans, and that, therefore, the latter would come off victorious in the war." When the Etruscans heard the voice, they were afraid, and struck their tents, and marched home, leaving the Romans to enjoy the independence they had won, and to bury their dead consul with great honor. This is the legend of Lucius Junius, whom the Romans called Brutus, and whose posterity bore the name, given in the first place as a term of obloquy, esteeming it thenceforth as an ornament and a grace.—There has been much doubt and dispute as to the reality of the events related in the above legend. It may, however,

as certain that "Brutus and Poplicola," to borrow the words of Dr. Arnold, "were, no doubt, real characters, yet fiction has been so busy with their actions, that history cannot venture to admit them within her proper domain." It is shown distinctly by Niebuhr, from the translation found in Polybius, made by himself from the brazen tables in the capitol, preserved in the archives of the ediles, of a treaty with Carthage of commerce and navigation, ratified in the first year of the commonwealth in the consulship of Brutus and Collatinus, that their names were recorded in that treaty, and that when it was made Rome was in possession of all the Latin country, and all the coast from Ostia beyond Terracina, probably along the whole shore-line of Campania to the confines of Italia, and also that she traded largely with Sicily, Sardinia, and the Libyan coast, to the westward of the Beautiful cape or Hermon promontory, now Cape Bon; the treaty being entered into with a view to the preservation of the rights and privileges of 2 already great maritime nations. Notwithstanding Tuscan conquest, Gallic invasion, and consequent destruction of monuments, registers, and archives, the preservation of this one treaty indisputably fixes the fact of the abolition of a monarchical, and the establishment of a consular, form of government in Rome at this date; fixes the identity and authenticity of Brutus and Collatinus; sets aside, as worthless, the stories of Rome being merely a small, rude town, occupied by agriculturists and half-brigand soldiers, and proves her to have been already a large, wealthy, flourishing community, with regular navigation, regular commerce, and a government at once sufficiently well established and foresighted to frame regulations of trade with foreign powers for the increase of commercial facilities, and sufficiently powerful and well known abroad to treat on equal terms with great powers beyond the sea.

BRUTUS, MARCUS JUNIUS, the tyrannicide the son of that Marcus Junius Brutus whom Pompey caused to be murdered, and of Servilia the half sister of Cato, was born in the autumn of 85 B. C., died 42 B. C. He lost his father when he was only 8 years old, but his mother and uncles conducted his education with the utmost care. On the outbreak of the civil war, he followed the example of Cato, and joined the Pompeians, notwithstanding his aversion to their leader. In the engagement near Dyrrhachium, he very much distinguished himself, but after the defeat his party at Pharsalia, he made his peace with Cæsar, and returned to Rome. On the termination of the Alexandrine war, Cæsar appointed him to the government of Cisalpine Gaul. 44 B. C., he caused him to be made *prætor* *urbanus*, and promised him the consulship, and the province of Macedonia. But all the offices and honors, all the marks of friendship and esteem which the dictator had, or might have, bestowed on him, could not hold Brutus to his

legiance. Even while recognizing the government of Cæsar, by acting under it, he was induced by Cassius to join a conspiracy which had for its object the assassination of his patron. After the perpetration of this deed, and some ineffectual efforts to bring the Roman people to approve it, he retired into Macedonia, whence he subsequently went into Asia, where himself and Cassius raised a mighty force, with which they marched to encounter the triumvirs. The rival armies met near Philippi. In the first engagement Brutus was victorious, but being defeated in the second, he cast himself upon his sword, and put an end to his life.

BRUYÈRE, JEAN DE LA. See LA BRUYÈRE.

BRUYN, CORNELIUS DE, a Dutch traveller and painter, born at the Hague in 1652, died at an advanced age at Utrecht. He visited Rome in 1674, and for several years devoted himself to painting in different cities of Italy. After travelling through Asia Minor, Egypt, and the *Ægean* isles, he again resumed the practice of his art at Venice, and in 1698, in Holland, published an account of his adventures. From 1701 to 1708, he was travelling in Russia, Persia, India, and the islands of the Indian ocean, and on his return published a narrative, which was chiefly esteemed for the beauty of the accompanying plates.

BRYAN, an eastern county of Georgia, named in honor of Jonathan Bryan, bordering on the Atlantic; area, 472 sq. m. The Ogeeche river touches its N. E. boundary, and the Canouchee flows through it from W. to E. The soil is sandy. The surface, on the banks of the river, is undulating, and in other parts generally level. Much of the land is covered by pine forests. The productions in 1850, were 54,927 bushels of Indian corn, 88,117 of sweet potatoes, 536 bales of cotton, and 2,409,387 pounds of rice. There were 11 churches and 100 pupils attending public schools. The county is traversed by the projected route of the Savannah and Gulf railroad. Pop. in 1855, 3,254, of whom 2,080 were slaves. Value of land in 1856, \$514,745. Capital, Eden.

BRYAN, or BRYANT, SIR FRANÇOIS, an English soldier and poet of the 16th century, died in 1550. In 1539 he was ambassador in France; and in 1530 in Rome, to settle the matter of the divorce of Henry VIII. Under Edward VI. he marched against the Scots, and in the battle of Musselburgh commanded the light-horse. In 1549 he was appointed governor of Ireland, where he married the countess of Ormond. Some of his songs and sonnets were printed with those of Surrey and Wyatt.

BRYAN, GEORGE, a native of Dublin, born in 1731, died in Jan. 1791, came to this country young, and settled in Philadelphia. After devoting several years to commercial pursuits, he became a politician, and was a member of the congress of 1765, which met to remonstrate with Great Britain. After the declaration of independence he became vice-president, and in

1778 president, of the supreme executive council of Pennsylvania. In 1779, in the legislature, he projected and carried through an act for the gradual abolition of slavery in the state. In 1780 he was appointed a judge of the supreme court of Pennsylvania, and in 1784, a member of the council of censors, both of which offices he filled till his death. He strenuously opposed the adoption of the federal constitution.

BRYAN, MICHAEL, an English author, born at Newcastle in 1757, died in London, March 21, 1821, wrote the "Biographical and Critical Dictionary of Painters and Engravers," of which an enlarged edition, by Mr. Stanley, was published in London in 1849.

BRYANT, JACOB, an English writer, born at Plymouth, 1715, died at Cypenham, near Windsor, Nov. 14, 1804. He was graduated at Cambridge in 1740, and was tutor to the marquis of Blandford, subsequently duke of Marlborough. In 1756 he became the duke's secretary, and accompanied him during his command in Germany, as master of the ordnance. After his return he received a lucrative appointment in the ordnance, and refused the mastership of the Charterhouse. He published, in 1767, "Observations and Inquiries relating to various parts of Ancient History," wherein he discusses the most abstruse and curious of questions. In 1774 appeared the first 2 volumes, followed in 1776 by a 3d, of his most noteworthy and elaborate work, "A New System or Analysis of Ancient Mythology, wherein an attempt is made to divest Tradition of Fable and to restore Truth to its Original Purity." This production is devoted to the history of the Canaanites, Pelasgi, Scythæ, Indoscythæ, Leleges, Edomites, and other nations. In order to "divest tradition of fable," he called to his aid etymological deductions, endeavoring to glean historical facts from the affinities of language. In 1775 he published "A Vindication of the Apamean Medals." In 1780 appeared his *Vindicia Flavianæ*, vindicating the testimony of Josephus concerning Christ. Priestley and he engaged the same year in a discussion on philosophical necessity. Bryant believed in the authenticity of the poems of Thomas Rowley (the Chatterton forgeries), and in 1781 published 2 volumes to prove the point. In the 7th volume of the "Archæologia," he furnished a paper on the Zingara or gypsy language. In 1796, in "A Dissertation concerning the War of Troy," &c., Bryant contended that no such city ever existed in Phrygia, and that no such war ever took place. His last literary labor consisted in preparing for the press a volume of "Dissertations on Various Subjects in the Old Testament," written more than 80 years before. This book is principally occupied with discussions of points in the Scriptural biographies of Balaam, Samson, Jonah, and Joshua.

BRYANT, SOLOMON, an Indian preacher, born about 1695, died May 8, 1775, was settled at Marshpee, Mass., in 1742, where he preached to the Indians in their own language during about

18 years, when he was dismissed, not being sufficiently economical in the management of the church accounts; he was also careless with regard to those whom he admitted to the church.

BRYANT, WILLIAM CULLEN, an American poet, born Nov. 8, 1794, at Cummington, Hampshire co., Mass. His father, Peter Bryant, was a distinguished local physician, who had also travelled considerably, and devoted much time to the culture of his mind. He took unusual interest in the intellectual and moral development of his children, and was rewarded in the case of all of them, and particularly in that of William, with early evidence of their proficiency. The poet, in his beautiful hymn to death, alludes feelingly to this parent in the lines beginning:

For he is in his grave, who taught my youth  
The art of verse, and in the bud of life  
Offered me to the muses;

which was no poetic exaggeration, but a literal truth. There are few instances of precocity more remarkable than that of Bryant. He communicated lines to the county gazette before he was 10 years of age, and in his 14th year his friends caused to be printed 2 considerable poems, the "Embargo," a political satire, and the "Spanish Revolution." These passed to a 2d edition the next year (1809), and such were their merits that, in the preface to that edition, it was found necessary to certify the production of them by a person so young, in order to remove the scepticism of the public. In his 19th year he wrote *Thanatopsis*, which still holds its place, in general estimation, as one of the most impressive poems in the language. He had in 1810 entered Williams college, where he was soon distinguished for his attainments in language and in polite literature. At the end of 2 years he took an honorable dismission, and engaged in the study of the law, at first with Judge Howe, in Worthington, Mass., and afterward with William Baylies, in Bridgewater. Admitted to the bar in 1815, he commenced practice in Plainfield, and afterward removed to Great Barrington. He speedily rose to a high rank in the local and state courts; but his tastes inclined him rather to letters than to law. In 1816 his poem "*Thanatopsis*" was published in the "North American Review," and introduced him to the acquaintance of Mr. Richard H. Dana, who was one of the club which then conducted the "Review." He contributed also several prose articles to that periodical. In 1821 he delivered before the Phi Beta Kappa society, at Harvard college, a didactic poem on the "Ages," and in that year several of his poems were collected in a volume at Cambridge, and obtained for him immediate recognition as a writer of the highest merit. He removed to the city of New York in 1825, and was engaged as an editor of the "New York Review," soon after merged into the "United States Review," to which he contributed several criticisms and poems, which increased his reputation. For these periodicals he received many

articles from his friends Dana and Halleck. In 1826 he connected himself with the "Evening Post" newspaper, under the editorial control of William Coleman. At that time it was inclined to what was termed federalism, and Mr. Bryant, whose tendencies were toward republicanism, sought to give it more and more a republican character. When he acquired an exclusive control of its columns, a few years later, he rendered it decidedly "democratic," taking ground openly in favor of freedom of trade, and against all partial or class legislation. From 1827 to 1830, Mr. Bryant was associated with Robert Sands and Gulian C. Verplanck in the editorship of the "Talisman," a highly successful annual; and he contributed about the same time the tales of "Medfield" and the "Skeleton's Cave" to a book entitled "Tales of the Gleaner Spa." In 1832 a complete edition of his poems was published in New York, and a copy of it reaching Washington Irving, then in England, he caused an edition to be printed there, with a laudatory preface. It was most generously reviewed by John Wilson, in "Blackwood's Magazine," and from that time Mr. Bryant's reputation in England, and on the continent of Europe, has stood as high as it does in his own country. Having associated William Leggett with himself, in the management of the "Evening Post," he sailed with his family to Europe in the spring of 1834. He travelled extensively through France, Italy, and Germany, residing for months together at the principal capitals, and enlarging his knowledge of the languages and literatures of the leading nations. His poems bear witness to his familiarity with the Spanish, Italian, German, and French languages, which he has continued to cultivate. After returning to his native country, and resuming his professional labors for some years, Mr. Bryant went again to Europe in the year 1845. In 1849 he made a third visit, and extended his voyage into Egypt and Syria. The desultory letters written to his journal during these wanderings were published in a book called "Letters of a Traveller," soon after his last return. But in the intervals of these foreign journeys he had by no means neglected his own country, and the same volume contains evidences of his sojourn in nearly all parts of the United States, from Maine to Florida, and of a trip also to the island of Cuba. Mr. Bryant's love of nature is so pervading, and his habits so active, that he has scarcely allowed a year to pass without accomplishing a visit to some locality remarkable for its natural beauty or grandeur. An inveterate pedestrian, also, he is always delighted when he is able to make these visits on foot, and under circumstances in which he can control his movements, without regard to the exigencies of steamboats and railroads. About the year 1845 Mr. Bryant purchased "an old-time mansion," embowered in vines and flowers, near the beautiful village of Roslyn, on Long island, where he has since resided, earnest-

ly employing his leisure hours in the garden and the field. His love of art, at the same time, has been cherished by an intimate association with the more eminent artists of the country. In 1848 Mr. Bryant was called upon to deliver a funeral oration on Thomas Cole, his personal friend, and among the foremost of American landscape painters. Again, in 1852, on the occasion of the commemoration held in honor of the genius and worth of the late James Fenimore Cooper, and in view to the erection of a monument to that celebrated novelist in the city of New York, he was appointed to pronounce a discourse on his life and writings. Of his various writings in prose, it has been said that they contain "no superfluous word, no empty or showy phrase," but are marked throughout by "pure, manly, straightforward, and vigorous English." His poems are characterized by extreme purity and elegance in the choice of words, a compact and vigorous yet graceful diction, great delicacy of fancy, great dignity and elevation of thought, and a genial yet profoundly solemn and religious philosophy. As a minute and sympathetic observer of nature, he is almost without a rival.—In person, Mr. Bryant is slender but symmetrical, with a large and well-formed head, and a peculiarly firm and erect carriage. His manners are reserved and simple, even to a shyness; yet he does not avoid, while he does not court society; and to a rare amiability he adds a thorough integrity of character. Mr. Bryant made another journey to Europe in 1837 and 1868, and has given graphic descriptions of the countries through which he passed, in a series of letters addressed to the "Evening Post." He was received with great distinction in the literary circles of Madrid, and an interesting account of his visit there was published in the Spanish newspapers.

**BRYAXIS**, an Athenian statuary, who flourished in the 4th century B. C. He cast a statue in bronze of Seleucus, king of Syria, and assisted in adorning the mausoleum with bas-reliefs. He also executed 5 gigantic statues at Rhodes, a statue of Paniphae, and other works. According to Clemens Alexandrinus, 2 of his statues were attributed by some to the celebrated Phidias.

**BRYDGES**, **SIR SAMUEL EGERTON**, an English author, born at Wootton court, in Kent, 1762, died at Geneva, Sept. 8, 1837. He was educated at Cambridge. In 1790, after the death of the last duke of Chandos, he induced his elder brother, the Rev. E. T. Brydges, to prefer a claim to the ancient barony of Chandos, as a descendant from Anthony Brydges, 8d son of the 1st Lord Chandos. This claim was for many years before the house of lords, who finally decided against its validity in 1808. The claimant died in 1807, and Mr. Egerton Brydges, who succeeded him, insisted, with great pertinacity, that, though defeated in parliament, he could, when he pleased, assert his right by common law. Thenceforth, he usually added to his signature the words, "Per

legem terræ, Chandos of Tudeley." He now possessed considerable landed property in Kent, and made several unsuccessful attempts to obtain a seat in parliament, and was eventually elected for the borough of Maidstone, for which he sat from 1812 to 1818. He rarely spoke, and generally voted with the Tories. He specially directed his efforts to effect those changes in the poor laws and copyright act, which were made many years later. In 1815, he was created a baronet. On losing his seat in parliament, he visited many parts of the continent, returning to England in 1826, and remaining for 2 years; but his affairs becoming inextricably embarrassed, he removed to Geneva, and remained in great seclusion until his death. The failure of his attempt to obtain a seat in the house of lords threw a gloom over his life, and from the querulous tone of his writings Prof. Wilson pronounced him to be head of the moping school of modern authors. His literary labors were varied and unceasing, including romance, poetry, criticism, politics, biography, genealogical antiquities, topography, and classical literature. The novel, "Mary de Clifford," is the best of his fictions. His "Recollections of Foreign Travel, on Life, Literature, and Self-Knowledge," is full of information, and there is much of value in his "Autobiography," containing anecdotes of his times, and the literary and political personages with whom he was long associated. Another curious work is his "Imaginary Biography." He also produced "Letters on the Character and Poetical Genius of Lord Byron." Shortly before his death, he stated, in "Fraser's Magazine," that he had written over 14,000 sonnets. He edited Milton's poetical works, appending an excellent memoir. His abilities as a genealogist, topographer, and bibliographer, are attested by his *Censura Literaria* (10 vols.), *Restituta* (4 vols.), *Theatrum Postarum, Stemmata Illustrata, Les Terra*, and "British Bibliographer." He also edited a "British Peerage," crowded with various information, heraldic, genealogical, and personal.

**BRYDONE**, **PATERICK**, a Scottish traveller, born in 1741, died June 19, 1818. He commenced his travels for the purpose of making "discoveries as to the precise state and temperature of the air on the summits of the highest mountains in Europe." He passed through France, to the Alps and Apennines, made a tour through Sicily and Malta (1768), and after visiting the principal islands in the Mediterranean, returned to England in 1771, where he published an "Account of Travels," among the most striking passages of which are his account of the bursting of a thunder-storm under his feet on the Alps, and some curious remarks on the state of the atmosphere on the summit of Mount Etna. He considered electricity to influence many of the phenomena of nature, and to be "a 5th element, distinct from, and superior to, the other four."

**BRYENNIUS**, **MANUEL**, a Greek writer on

music, who flourished between A. D. 1382 and 1383. Dr. Wallis translated his works in 1680.

**BRYNHILDA**, a mystic personage, in the Scandinavian legends, variously represented as connected with Attila, Sigurd, and Gurnar, or Gunther, and playing the principal part in the series of extraordinary adventures attributed to those persons.

**BRYONIA**, or **BRYONINE**, a poisonous extract of bitter taste, prepared from the root of the *bryonia alba* and *dioica*, by the process for bitter extracts. It is of a yellowish brown color, soluble in water and alcohol, but not in ether. The plant *bryonia* (Gr. *βρυο*, to grow rapidly) is a wild creeper, with twisting tendrils and scarlet berries of a disagreeable odor. It is met with in different parts of Europe, where it is employed as a purgative medicine, and its berries in dyeing. Its root, when bruised and applied to the skin, is so highly irritant as to produce blisters. Over-doses of the extract have proved fatal by its poisonous qualities.

**BRZESO LITEWSKI**, or **BREST LITOWSKI**, a fortified town in the western part of Russia, government of Grodno, on the right bank of the river Bug, about 110 miles south of Grodno. It was formerly the capital of a Lithuanian palatinate, and contains an old castle, a high school, 3 churches, and a synagogue, and has a considerable transit trade. In 1794 Suwaroff gained here a victory over the Poles. Pop. 18,100; pop. of the district, 100,450.

**BUA**, a small island in the Adriatic, belonging to the Dalmatian district of Spalatro, is connected with the town of Trau by a bridge; pop. about 4,000. During the latter period of the Roman empire many political offenders and heretics were confined here. It contains 6 villages, of which Santa Croce, or Bua, is the principal; pop. about 1,400. The productions of the island comprise dates, wine, olives, and particularly asphaltum, of which there is a remarkable well.

**BUACHE**, **PHILIPPE**, a French geographer, born in Paris, Feb. 7, 1700, died Jan. 24, 1773. He spent 7 years in arranging a new repository of maps and charts. In 1729 he became chief geographer to the king, and in the following year a member of the academy of sciences, in which he had been the means of instituting a professorship of geography. His notions of geography were in some respects peculiar. He asserted that there was a vast continent about the south pole, traversed by lofty mountains and gigantic rivers. The suggestion, that at Behring's straits a connection between Asia and America might be traced, came from him.

**BUACHE DE LA NEUVILLE**, **JEAN NICOLAS**, a nephew of the preceding, and also a geographer, born Feb. 15, 1741, died Nov. 21, 1825. He instructed the royal princes, afterward Louis XVI. and XVIII., and Charles X., in geography. After the death of D'Anville, he became first geographer to the king, and keeper of the marine charts and log-books, in which capacity he prepared the charts and plans with

which La Pérouse was provided for his voyage of discovery. During the reign of terror he was deprived of his office, but was reinstated after the fall of Robespierre.

**BUBASTIS**, or **BUBASTUS**, a city of ancient Egypt, now in ruins; mentioned in the Old Testament as *Phi-Beseth*, now known by the name *Tel-Bustak*; situated in the delta of the Nile, S. W. of Tanis; was built in honor of the goddess Pasht, called by the Greeks *Bubastis*. This goddess was represented by the figure of a cat, and many mummied cats have been found in the tombs of *Bubastis*. On the N. side of the city commenced the canal between the Nile and the Red sea, constructed by Pharaoh Neco. *Bubastis* was taken by the Persians 852 B. C., and its walls dismantled. Among the ruins of this city have been found remains of costly and magnificent temples. Here were celebrated solemn feasts to the goddess *Pasht*, attended by people from all parts of Egypt, even to the number of 700,000 at one time, as is stated by Herodotus.

**BUBBLE**, a film of liquid substance blown into a globular form, by the gas or air with which it is filled. Bubbles rise naturally and burst upon the surface of waters, by the escape of carburetted hydrogen or other gases from the mud at the bottom. When blown in a mixture of soap and water, the film has sufficient adherence to rise in the air, and thus the bubbles form small balloons, particularly if filled with hydrogen gas. Filled with a mixture of hydrogen and oxygen, they may be exploded on the approach of a candle with a report like that of a pistol.

**BUBNA UND LITIZ**, **FREDINAND**, count, an Austrian general, born at Zamerak, Bohemia, Nov. 26, 1768, died in Milan, June 6, 1825. His poverty forced him to join the infantry at the age of 16 as a volunteer. After the siege of Belgrade he was made standard-bearer, from which position he rose to the dignity of field-marshal. He was also charged with some important diplomatic negotiations. In 1821 he put down an insurrection in the north of Italy.

**BUBONA**, in Roman mythology, the goddess who presided over cows and oxen. Small statues of this goddess were placed in the niches of stables, and her likeness was often painted over the manger.

**BUBULCUS**, **CARIUS JUNIUS**, a Roman consul, lived about 800 B. C. He received the consulship thrice; was appointed dictator 802 B. C.; and waged successfully the war against the *Æquians*.

**BUCCANIER**, **SIR GEORGE**, an English antiquary and historian, born in Lincolnshire in the 16th century, died in 1628. He wrote the "Third Universitie of England," and the "Art of Revels;" and is spoken of by Camden as "a person of excellent learning." His history of Richard III., in which he maintains that that monarch was deformed neither in body nor mind, constitutes his principal claim to distinction.

**BUCCANEERS** (Fr. *boucanier*, one who cures the flesh of wild animals), a name applied to

bands of French and English marine freebooters, who in the 17th century committed extensive depredations on commerce, and even extended their ravages to the mainland among the Spanish settlements of North America. The original buccaneers were those settlers, chiefly French, who attempted to introduce themselves into the Antilles not long after their first conquest by the Spaniards. The Spaniards, however, wished to monopolize their possession, and when these settlers had been driven out of St. Christopher they took refuge in Hispaniola, a large part of which swarmed with droves of wild cattle. These they hunted, selling the hides to the Dutch trading at the sea-shores, in exchange for commodities of which they were destitute. Meanwhile the Spaniards looked with jealous eyes upon these new settlements, and lost no opportunity of harassing and destroying them; shooting down the buccaneers, whether found singly or in numbers; hunting them through every part of the island, and frequently surprising parties when asleep and worn out with the fatigues of the chase, and cutting their throats without mercy. At length they forced the buccaneers for self-preservation to adopt other pursuits than hunting; some accordingly became planters, but far the greater part, organizing in bands of rovers, began to return with compound interest the injuries they had sustained. They were bound by oath to render all assistance to each other, and to wreak the utmost vengeance on their foes, especially the Spaniards. If one of their number was killed by the enemy, he was to be signally avenged; those of them who were maimed in battle were compensated for their wounds according to their severity, while those rendered helpless for life were provided for by the whole body. Plunder from the enemy was shared, but thieving from a fellow buccaneer was summarily punished. The stronghold of the buccaneers had been formed in 1690, at the little island of Tortugas, where they had driven out the Spaniards, and erected fortifications. They went forth in bands of 50 to 150, at first only in open row-boats, attacking and boarding vessels with desperate ferocity. These boats, frequently so small that the crews had no room to lie down, were directed bows on to an enemy, while their marksmen would take aim at the ports of a vessel and pick off the gunners; as soon as they came near enough they threw out grappling irons, and closing with the foe poured upon her decks. They lay in wait for vessels passing from America to Europe; those which sailed the contrary way they seldom molested, knowing them to be laden only with cargoes which they could not readily sell, but on the return voyages they were sure to find valuable sights of gold and jewels. The Spanish galleons in particular attracted their attention, as sometimes the booty seized in them was enormous. Though the richly laden vessels usually sailed in fleets for protection, the buccaneers followed them as they emerged from the gulf of Bahama, and if one by accident became separated from

the others, her doom was sealed. If her stores were such as to satisfy the rapacity of the pirates, she was permitted to proceed after being plundered; otherwise she was scuttled and her crew thrown overboard. Presently the French buccaneers established themselves in St. Domingo, and the English in Jamaica, and the booty acquired in their marauding expeditions was spent in the most extravagant way. Indulging in the wildest licentiousness, immense sums were squandered in gaming and on their women, in drunken revels and every imaginable kind of debauchery, until they had beggared themselves and were forced to embark in another expedition. At length to such a pitch did the depredations of these ruffians proceed, that Spanish commerce visibly declined, and Spanish ships scarce dared to venture to America. Alarmed for their own gains, the buccaneers changed their tactics, and from pillaging vessels attacked fortified towns.—Many desperate characters made themselves conspicuous in these enterprises. One of them was a Frenchman, named Montbar, who had contracted a deadly hate of the Spaniards, by reading an account of their American conquests. He determined to join the buccaneers for the purpose of executing his schemes of vengeance. On his passage to the West Indies he fell in with a Spanish ship, which, as usual, was at once boarded and the crew put to the sword. On arriving at the coast of St. Domingo he offered his services to the buccaneers, not as commander, but as one who would be foremost in the fight. His offer was accepted, and on the same day, falling in with a vessel, he attacked her with fury, and scarcely left a Spaniard alive. He displayed the same spirit afterward on every occasion, and earned the title of the exterminator. The Spaniards now took the alarm and resolved to confine themselves within their settlements. This determination only stimulated the buccaneers to greater efforts, in which they were much aided by one of their leaders, François L'Olonnais, a man of the lowest origin, who had raised himself to be master of 2 boats and 23 men, with which he took a Spanish frigate on the coast of Cuba, and afterward at Port-au-Prince 4 more vessels, despatched to seize him. He then sailed for Tortugas, and there meeting with Michel de Vasco, who had signalized himself by taking a Spanish galleon loaded with treasure under the very guns of Portobello, the 2 combined with 450 men, sailed (1666) to the bay of Venezuela, took a fort at its entrance, spiked the guns, and murdered the garrison, 250 in number. They then proceeded to Maracaibo, on the lake, and compelled it to capitulate. Disappointed in not finding treasure at Gibraltar, another town on the same shore, they fired it. An immense ransom was paid for Maracaibo, and the buccaneers carried off beside the church bells, crosses, and pictures, intending to build a chapel at Tortugas, by way of thanks to Heaven for their successes. But the most noted of all these freebooters, and the one whose name is now most readily re-



membered, was Henry Morgan, a Welshman. While L'Olonnais and De Basco were wasting in debanchery their ill-gotten gains from Venezuela, he sailed from Jamaica in Dec. 1670, surprised and took Portobello, and then directed his operations against Panama. He at first went to the island of St. Catharine to procure some guides if possible, and here the governor of a strong fortress, who might have beaten him off, no sooner found out who he was than he concerted with him to surrender on easy terms, and after keeping up for some time the farce of a cannonade, the buccaneers entered the place, demolished the fortifications, and carried off an immense quantity of ammunition. They then steered toward the Chagres river and took a fort at its entrance, after a gallant resistance from its commander, who was killed. Then leaving some of his vessels, Morgan sailed with sloops up the river 88 miles, to Cruces, and thence proceeded by land to Panama. He defeated some troops sent out to meet him, and then entered the city, where he found a prodigious booty, with which the buccaneers departed, after firing the place and carrying off a large number of prisoners.—In 1688 an expedition was planned by Van Horn, a native of Ostend, who had served among the French for the greater part of his lifetime; he owned a frigate, and joining a number of other ruffians as desperate as himself, with 6 vessels and 1,200 men, he sailed for Vera Cruz, and under cover of darkness landed, surprised the fort and barracks, and surrounded the churches whither the citizens had fled in terror for safety. The pirates then pillaged the city, and after they had secured every thing of value they proposed to the citizens to ransom their lives for about \$2,000,000. This proposal was at once accepted, and half of the money paid down forthwith, when the buccaneers became alarmed at the approach of troops as well as a fleet of 17 Spanish vessels, and made off, carrying with them 1,500 slaves, and sailing through the enemy's line unmolested. About a year later all the buccaneers were seized with a sudden passion for plundering Peru. Upward of 4,000 men joined in this movement, some sailing by way of the straits of Magellan, and others crossing the isthmus. Many cities along the coast were pillaged, and the inhabitants massacred; silver was so common that the buccaneers would not receive it in ransom, and would accept nothing but gold, pearls, or jewels.—While these events took place in the southern seas, an adventurer of the name of Grammont, a gentleman of good birth and education, and distinguished as a military man, but obliged to join the outlaws from his excesses with wine, women, and play, made a demonstration in 1685 against Campeachy. He landed with his party without opposition, but meeting 800 Spaniards outside of the town he defeated them, and the combatants all entered the place together. The buccaneers then turned the guns of the city against the citadel, but as these did little harm, they were preparing some plan to

surprise it when news was brought that it had been abandoned. Only one man remained faithful to his duty, refusing to quit his post, and Grammont was so pleased with his fidelity that he secured to him all his effects, beside rewarding him handsomely. After this the marauders spent upward of 2 months at Campeachy, and rifled the country of every thing valuable for 15 leagues around; proposing when their treasures were embarked that the governor, who was still in the field with 900 men, should ransom the city. On his refusing to do so, they burnt it to the ground, and then retired to St. Domingo.—In 1697 a squadron of 7 ships, under the command of a buccaneer named Pointis, with 1,200 men, sailed from Europe to attack Carthagena. This was the greatest enterprise that the buccaneers ever attempted, but they were perfectly successful; the city was taken, and the booty seized amounted to nearly \$8,000,000. The rapacious commander managed to secure for himself nearly all of this immense sum, and the buccaneers exasperated with this treatment returned to Carthagena, and there again secured enough to repay them for their losses; but on sailing for Europe they were attacked by a fleet of Dutch and English ships, in alliance with Spain, and most of their vessels captured or sunk. This was the last considerable exploit of the buccaneers; as the most remarkable of their leaders dropped off one by one, none were found to supply their places, so that by degrees the organizations fell to pieces; and moreover, many of them were induced to accept civil and military appointments to draw them from the piracy which governments had been unable to suppress.

**BUCCARI**, a free royal Austrian seaport town in the circle of Fiume in Croatia; pop. 7,800. It is on an arm of the gulf of Quarnero, and has a good harbor. It formerly belonged to the Zriny family, and upon the conspiracy of the latter in 1671 it was seized by Austria.

**BUCCINUM** (Lat. *buccina*, a trumpet), a genus of shells, the shape of many species of which is like that of a trumpet, while the sound of a trumpet may be produced by blowing into them. Their characteristics are a smooth, non-plicated columella of thick gibbous or flattened form, and a short canal at the base of the shell, abruptly curved away from the outer lip. Some species of this shell are often very large and handsome, so that they are used as parlor ornaments. Those commonly called harps are the most beautiful shells of this family.

**BUCCLEUGH**, or **BUCCLEUGH**, an ancient parish of Scotland, but now comprehended in the parish of Ettrick, Selkirkshire. It gives the title of duke to the head of the ancient and illustrious family of Scott. Buccleugh is also the name of a suburban parish of Edinburgh.

**BUCELLAS**, a village of Portugal, in Estremadura, surrounded by an excellent grape-growing district. It gives its name to a species of white wine produced in its vicinity.

**BUCENTAUR**, the gilded galley in which

the Venetian dogs used to sail over a portion of the Adriatic on every Ascension-day, accompanied by the ambassadors and senators, and espouse that sea in the name of the republic by dropping a ring into it.

**BUCKEPHALUS**, the charger which carried Alexander the Great through all his campaigns. His color was white, and he was called "Buckephalus" because he had a black mark resembling an ox's head on his forehead. The story is, that a certain Thessalian offered the horse for sale to Philip, but as none of his attendants or courtiers could manage him, the king ordered his owner to take him away; whereon Alexander, who was present, openly expressed his regret at losing so fine an animal. Philip immediately replied that he would buy the horse if his son could ride him. Alexander accepted the offer, and succeeded in the attempt. The horse would never suffer any person to mount him but Alexander.

**BUER, MARTIN**, a German reformer, born at Schlestadt, in Alsace, in 1491, died Feb. 27, 1551. His real name was Kuhlhorn (Cownhorn), which, according to the fashion among the learned of the time, he changed to a Greek analogue (*Bow, ex, and repas, horn*). Sent at the age of 7 years to a Dominican convent, he became the object of dislike and hostility by the independence of his sentiments, and was obliged to seek an asylum in the house of a friend. Afterward removed to Strasbourg, he became acquainted with the writings of Melancthon and Luther. After conferences with the latter he espoused the principles of the reformation. He was, however, inclined to favor the sentiments of Zwingli rather than those of Luther, though he was always a pacificator between them. This was a marked feature of his character. To the conference of Smalkald Buer had brought a confession known in history as the confession of the 4 cities, from Constance, Memmingen, Strasbourg, and Lindau, which did not very well agree with the language of the memorable 15th article of the Augsburg confession. Buer, ever ready with expedients, introduced into the confession an acknowledgment of a "presence of Christ for the hand and mouth," and so the 4 cities were saved to the league of Smalkald. In 1548 he was summoned to Augsburg to sign the *Interim*, an act by which Charles V. sought to make a temporary peace between the Catholics and Protestants until he should call a general council. Buer, with all his peace-loving propensities, refused to sign this document, and rendered himself obnoxious to Charles. In this juncture he accepted the proposals of Cranmer to remove to England, and accordingly departed for that kingdom in 1549, where he was immediately appointed professor of theology at Cambridge. He lived, however, only 2 years after his removal. After he had been dead 6 years his body was dug up, in the reign of Mary, and thrown upright to a stake, in company with that of Fagius (who had left Germany at the

same time and for the same reasons), and burned, and his tomb demolished. Under Elizabeth the tombs of Buer and Fagius were rebuilt. Buer's writings were both in Latin and German. A commentary on the Psalms deserves mention for its excellence, and for being published at first under an assumed name.

**BUCH, LEOPOLD VON**, a German geologist, was born at Stolpe, in the Prussian province of Brandenburg, April 25, 1774, died in Berlin, March 4, 1858. At 16 he was placed under the care of Werner at the mining academy of Freiberg, where Alexander von Humboldt was among his fellow-students. Von Buch made rapid progress, and manifested a peculiar aptitude for geological studies, as well as mineralogy. In 1797 he published his "Outlines of a Mineralogical Description of Landeck," and his "Outlines of a Geognostic Description of Silesia." In these works he gives the results of his mineralogical and geological investigations of the mountains of Silesia, which had never previously been systematically explored. Werner, the director of the academy, had propounded the Neptunian theory of geological formation, and Von Buch, as a young man, warmly espoused his master's theory. In his first investigations he classed basalt, gneiss, and mica-schist among the aqueous formations. In 1797 Von Buch met again with his old fellow-student at Salzburg, and while he was exploring Styria and the Alps in that neighborhood, Humboldt was engaged in some very important meteorological and endometrical researches in the same regions. In the spring of 1798 Von Buch pursued his geological excursions into Italy, and his investigations there unsettled his convictions of the truth of Werner's Neptunian theory; he inclined to the belief that the leucitic and pyroxenic varieties of basaltic rocks must be of igneous formation. In 1799 he went to Naples, and saw for the first time Mount Vesuvius, which he revisited on Aug. 12, 1805, in company with Humboldt and Gay-Lussac, the French savant, at the time of an eruption of the great volcano. In 1802 he visited the south of France and explored the regions of extinct volcanoes in Auvergne. The general aspect of the Puy-de-Dôme, with its cone of trachyte rock and its beds of basaltic lava, convinced him of the natural facts of igneous formations, and induced him to abandon Werner's exclusive doctrines of aqueous formation. The results of these geological researches were published in his *Geognostische Beobachtungen auf Reisen durch Deutschland und Italien* (3 vols. 8vo. Berlin, 1802-1809). From the south of Europe Von Buch turned to the north, and from July, 1806, to October, 1808, he explored the Scandinavian islands, carrying his investigations as far as the North cape, and establishing his headquarters in the desert island of Mageröe. The results of these researches were some very important discoveries with regard to the geological formation of the crust of the earth, the climatology of different regions, and the geograph-

ical distribution of plants. Von Buch was the first to suggest the idea of the slow and gradual elevation of the land of Sweden above the level of the sea, from the region of Frederickshall as far as Abo. The results of these explorations were published in his "Travels in Norway and in Lapland," 2 vols. 8vo. Berlin, 1810. His explorations of the Alps, in Switzerland, and of the mountains in Germany, induced Von Buch to put forth the opinion that the highest chains of mountains have never been covered by the sea, but are the result of successive upheavings through fissures of the earth's crust, the parallel direction of which is indicated by the principal chains of mountains in the Alps. This suggestion had already been made by Avicenna, or Ebn-Sina, a celebrated Arabian physician of the 11th century, and it has since been developed into a general theory by Elie de Beaumont. About this time, also, Von Buch published his views, which have since been confirmed by the labors of Nöggerath, with regard to the formation of amygdaloid agates, or almond stones, in the porphyries of melaphyre. In 1815 Von Buch went to the Canary islands, accompanied by Christian Smith, the Norwegian botanist, who perished in the unfortunate expedition of Capt. Tuckey at the mouth of the river Congo. The volcanic islands, with their gigantic peak of Teneriffe, became the basis of an elaborate series of investigations on the nature of volcanic activity, and the results produced by fire, which he published in his *Physikalische Beschreibung der Canarischen Inseln* (Berlin, 1825). He next visited the basaltic group of the Hebrides and the coasts of Ireland and Scotland. He continued his geological excursions and investigations, in fact, almost incessantly until the last day of his life. Eight months before he died he made another visit to the extinct volcanic regions of Auvergne in the south of France. His life was one continued round of observation, travel, and investigation. Being a bachelor, the ties of home did not obstruct his taste for travelling to any region of the globe where scientific curiosity attracted him. His journeys and his explorations were made mostly on foot; with a change of linen in his ample pockets and a geological hammer, he was equipped for any journey, and his own busy mind was all the company he needed in his travels. Such was the mode of life and the career of the man whom Alexander von Humboldt deems "the greatest geologist of the age."

BUCHAN, DAVID, a British voyager and explorer, born in 1780. He obtained a lieutenant's commission in the navy in 1806, and in 1810 commanded in that capacity the schooner *Adonis* on the Newfoundland station. His admiral, Sir John Duckworth, despatched him to the river Exploits, for the purpose of exploring the interior and opening a communication with the natives. He reached the mouth of the river in January, 1811, and with 84 men and 8 guides penetrated through the greatest difficulties 130 miles into the country. Finding

at length a village of wigwams, he took its inhabitants, 75 in number, captive, and treated them so well as to induce 4 to accompany him to a place where he had deposited presents for them. But so great was the hatred inspired by the cruelty of earlier travellers that Buchan on his return found the wigwams deserted and 2 of his sailors, whom he had left as hostages, beheaded and horribly mutilated. In 1816, Buchan was promoted to the rank of commander, and in 1818 was appointed to the command of an arctic expedition. The Greenland whalers having reported the sea to be remarkably clear of ice, the admiralty fitted out 2 expeditions that year—one to discover the north-west passage, the other to reach the north pole. The first was intrusted to Captain (soon Sir John) Ross and Lieutenant (soon Sir Edward) Parry, with the *Isabella* and *Alexander*. It proved unsuccessful, and much dissatisfaction was felt with its conduct. The *Dorothea* and *Trent* were the vessels selected for the other expedition, under Captain Buchan and Lieutenant (afterward Sir John) Franklin. Among the officers were several who have since greatly distinguished themselves in these voyages. The 2 vessels, admirably provided with all the scientific equipments of an arctic voyage, sailed in April and reached the place of rendezvous, Magdalena bay, Spitzbergen, about June 1. There they found walrus in abundance, and immense glaciers from the sides of which avalanches would fall every now and then with the crack of a thunder-clap. Before them rose that gigantic barrier of ice which has hitherto frustrated every effort to reach the north pole. Twice they attempted to penetrate it in vain. On June 7, they put to sea, and after several efforts to force a passage, were shut up for 13 days in a floe of ice within 8 miles of land, and with the water so shoal that they could see the bottom. At length the floe separated and bore to the south at the rate of 3 miles an hour. They reached the open sea and took shelter in Fair Haven. On July 6, finding that the ice was again driving northward, they emerged from their harbor and sailed northward until the barrier of ice closed upon them, reaching the latitude 80° 34' N., which was the most northerly point gained. They attempted in vain to drag the vessels on by ropes and ice-anchors, for the current carried them 3 miles an hour to the southward. The only result of the effort was the loss of several lives. Captain Buchan then stood over toward the coast of Greenland, but both vessels encountered a heavy gale of wind, which, with the constant shock from floating ice, so disabled the *Dorothea* that she was in a foundering condition. Lieutenant Franklin wished to try again with the *Trent*, which was much less damaged, but it was thought best that both vessels should go home together, which they accordingly did, after making such repairs as they could at Fair Haven. On

Aug. 80 they put to sea, and on Oct. 23 arrived at Deptford. In 1823, Buchan was promoted to the rank of captain, and commanded for some time on board the Grasshopper the Newfoundland station. Two years afterward, he became high sheriff of that colony, which post he held for several years. He then went on a new expedition into the northern seas, from which he never returned. His ship is supposed to have been burned at sea, but nothing is known with certainty of the fact. In 1839, the admiralty struck his name from the list of living captains. The bad success of his arctic expeditions has deprived Buchan of the glory which his ability, perseverance, and courage deserve. He wrote no account of his voyage, but Captain Beechey, who served on board the *Trent*, has supplied the omission. Science is indebted to him for important observations upon marine under-currents, the variations of the magnetic needle, the temperature of the deep sea as compared with that of the surface, and the compression of the globe at the poles.

BUCHAN, ELIZABETH (SIMPSON), the founder of a Scotch sect, now extinct, born near Banff, in 1788, died in 1791. She was educated in the Scottish Episcopal church, but on her marriage to Robert Buchan, in Glasgow, became, like him, a burgher seceder. In 1779, or thereabout, she broached dogmas of her own, soon deserted her husband and moved to Irvine, where she made a number of converts, among them Mr. Hugh Whyte, a relief clergyman. In 1784, the people assaulted Mr. Whyte's house, which the Buchanites had made their tabernacle. They then, 46 persons in all, set up a sort of community at a farm-house 18 miles from Dumfries, waiting for the millennium or the day of judgment, fasting for weeks in the expectation that they would be fed like the young ravens that cry, and abjuring all fleshly vanities. A few left, accusing Mrs. Buchan of tyranny and dishonesty, but the majority of her votaries were faithful to her to the last. She called her disciples around her death-bed and communicated to them, as a secret, that she was the virgin Mary, who had been wandering through the world since the Saviour's death, and that she was only going to sleep now, and would soon conduct them to the new Jerusalem. Her disciples, in the expectation of her re-appearance, refused to bury her until ordered by a justice of the peace.

BUCHAN, PETER, a Scotch antiquary, author of 2 volumes of "Ballads of the North of Scotland," and of kindred works, and celebrated for his enthusiasm for the legendary lore of his country, born in 1774, died in London, Sept. 26, 1864. He travelled over Scotland, collecting songs never before published, and thus brought a great number of Scotch ballads for the first time before the public.

BUCHAN, WILLIAM, physician, born at Anstruth, in Scotland, 1799, died in London, Feb. 25, 1805. After practising for a short

time in the north of England, where he distinguished himself by his successful treatment of the diseases of children, he removed to Edinburgh, where he graduated as M. D. There, in 1770, he published his "Domestic Medicine," of which, during his lifetime, 19 editions, each of 5,000, were published. It was translated into all the modern languages, has been constantly and largely reprinted in the United States, and obtained for the author, on its first success, a complimentary letter and gold medal from the empress of Russia.

BUCHAN, BULLERS OF, in Aberdeenshire, Scotland, near the town of Peterhead, and Slains Castle, the seat of the earls of Erroll, are described by Sir Walter Scott (who visited it in July, 1814) as "a huge rocky caldron, into which the sea rushes through a natural arch of rock." He walked round the top, and adds: "In one place the path is only about 2 feet wide, and a monstrous precipice on either side. We then rowed into the caldron or buller from beneath, and saw nothing around us but a regular wall of black rock, and nothing above but the blue sky. In the side of the caldron opens a deep black cavern." This place was visited by Dr. Johnson and James Boswell in August, 1778. In describing it, Boswell says that the force of the tempest must have driven the sea through the rock. He adds: "We walked around this monstrous caldron. In some places the rock is very narrow, and on each side is a sea deep enough for a man-of-war to ride in, so that it is somewhat horrid to move along." The caves below were formerly used by smugglers. In a high gale, the sea rushes in with great force. An old fisherman told Scott that he had seen it flying over the natural wall of the buller, which cannot be less than 200 feet high.

BUCHANAN. I. A north-western county of Missouri; area about 415 sq. m. The Missouri river separates it from the Indian territory; it is intersected by the Little Platte river, and drained by Castile and Livingston creeks. The soil is fertile, and the productions in 1850 amounted to 121,682 bushels of wheat, 1,985,718 of Indian corn, 56,549 of oats, and 80,078 pounds of wool. There were 8 grist mills, 9 saw mills, 2 newspaper offices, 6 churches, and 625 pupils attending public schools. Capital, St. Joseph. Pop. in 1856, 15,818, of whom 1,798 were slaves. II. A north-eastern county of Iowa; area, 576 sq. m. It is intersected by Wapsipinicon river and Buffalo creek, and is well supplied with timber and water. The productions in 1856 were 2,055 tons of hay, 45,121 bushels of wheat, 41,762 of oats, 184,699 of Indian corn, 27,949 of potatoes, and 58,199 lbs. of butter. Capital, Independence. Pop. in 1856, 5,125.

BUCHANAN, CLAUDIUS, D. D., chaplain of the East India company, born near Glasgow in 1766, died in Broxbourne, Eng., Feb. 9, 1815. In 1796 he was appointed chaplain of the East India company, and when the marquis Wellesley

founded a college at Fort William, he was nominated vice-provost and classical professor. He was the author of "Christian Researches," and other works, which had a great influence both in England and America in directing the attention of the religious public to the promotion of Christianity in India. He was employed in superintending an edition of the Syriac Testament at the time of his death.

BUCHANAN, GEORGE, a Scottish author of the 16th century, born in the beginning of Feb. 1506, died Sept. 28, 1582. He was sent to Paris about 1520 for his education, returned in about 2 years to Scotland, and in 1523 was engaged in a border foray and the storming of a castle in England. Two years later he took a degree at St. Andrew's, and in 1527 went again to Paris, where he remained connected with the university about 10 years. In 1537 he was again in Scotland, as tutor to one of the sons of King James, when he wrote some satirical poems directed against the monks and friars. The animosity of the church party, and especially of Cardinal Beaton, obliged him to flee, and he repaired successively to London, to Paris, to Bordeaux, and to Portugal. His occupation was probably that of teaching the rudiments of Latin in the universities, but he published 4 tragedies upon the classical model, and various odes and poems, by which his name became widely known. He returned to France in 1553, and in 1562 was at court in Scotland, and classical tutor to Queen Mary. As such he lived upon terms of apparent intimacy with her, and was made principal of St. Leonard's college, in 1566. He now openly declared himself a Protestant, and took the side of that party both in church and state, was a member and moderator of the assemblies of the church, and held some important secular offices. His *Fratres Fraterrimi*, another satire upon the friars, was published in 1564. In 1566, and again in 1567, he collected and published an edition of his poems. He was the author of the "Detection of Queen Mary's Actions," before the tribunal appointed to examine her at York, in 1568, which was extensively circulated in England, and used to blacken her fame. On this account he has been subjected by her friends to accusations of the darkest treachery. In 1570 he was intrusted with the education of James VI., then 4 years old. The year 1579 was marked by the publication of his *De Jure Regni apud Scotos*, a treatise, under the form of a dialogue, concerning the institutions of Scotland, upon the principles of government and society. For nearly 2 centuries this book, which inculcates the doctrine that governments exist for the sake of the governed, was held up as containing the sum of all heresy and rebellion. It has had the honor of many courtly refutations, and of being burnt, together with the works of Milton, in 1683, at Oxford, and again, in 1684, received a formal condemnation and burning from the Scotch parliament. His last production, the *Rerum Scotticarum His-*

*toria*, in 20 books, was published in 1582, the year of his death, but he is now remembered chiefly for his translation of the psalms into Latin verse. His mother tongue was probably the Gaelic, but the celebrity of his writings has been to some extent due to the elegance of their latinity.

BUCHANAN, JAMES, 15th president of the United States, was born at a place called Stony Batter, in Franklin co., Penn., April 22, 1791. His father, James Buchanan, emigrated to the United States from the county of Donegal, Ireland, in the year 1783; his mother was Elizabeth Spear, daughter of a respectable farmer of Adams co., Penn. The father commenced life as a hardy pioneer, but, by successful industry, soon acquired that competency which enabled him to give his son a classical education. Mr. Buchanan graduated at Dickinson college, Carlisle, in 1809, with high honor. In Dec. of that year he commenced the study of the law in the office of James Hopkins, of Lancaster, and was admitted to the bar Nov. 17, 1812, being then little more than 21 years old. A lawyer of not more than 4 years' standing, and not over 25 years of age, he successfully defended, unaided by senior counsel, in the session of 1816-'17 of the Pennsylvania senate, a distinguished judge, who was tried upon articles of impeachment. His practice increased with his reputation, his professional business accumulated, and his name occurs oftener in the "Reports" of the state than that of any other lawyer of his time; thus he found himself, at the age of 40, enabled to retire from the profession. Once only after his retirement could he be prevailed upon to reappear at the bar, and that was in an action of ejectment, which involved the only little property of a widow. The case was surrounded by great technical difficulties, but Mr. Buchanan succeeded in establishing the widow's title. At the age of 28 Mr. Buchanan became a member of the Pennsylvania legislature. In the progress of the war of 1812 between the United States and England, the British had taken and destroyed the public buildings at Washington. This act caused a feeling of general indignation throughout the country. At a public meeting in Lancaster, Mr. Buchanan, though a federalist, made an appeal in favor of a vigorous prosecution of the war, while he himself headed a list of volunteers to march to the defence of Baltimore. The company was commanded by Judge Henry Shippen, Mr. Buchanan willingly taking the position of private soldier. They marched to Baltimore under the command of Major Charles Sterret Ridgely, but their services not being required, they were there honorably discharged. In the legislature, to which he was elected in Oct. 1814, he supported every measure of national defence. When Philadelphia was threatened, and the state of Pennsylvania was obliged to depend on her own resources for the means of repelling the British force Mr. Buchanan made the most urgent appeals

the patriotism of the legislature to adopt efficient measures of relief. Being reelected to the legislature in 1816, he gave his ardent support to a bill, which was passed, appropriating the sum of \$300,000 as a loan to the United States, to pay the militia and volunteers of the state in the U. S. service. In 1820 Mr. Buchanan entered congress, and his first elaborate speech, delivered Jan. 11, 1822, on a deficiency in the military appropriation, was in support of federal authority, and in defence of Mr. Crawford, then secretary of the treasury. His speech on the bankrupt law, delivered March 12, took high constitutional ground. The law, as originally proposed, embraced only the mercantile classes, but an amendment was proposed, which extended it to all citizens of the Union. Against this Mr. Buchanan entered his protest. "We are now called upon," said he, "to decide the fate of a measure of awful importance. The most dreadful responsibility rests upon us. We are not now to determine merely whether a bankrupt law shall be extended to the trading classes of the community, but whether it shall embrace every citizen of the Union, and spread its demoralizing influence over the whole surface of society." Immediately after this speech the question was taken on the bill, and it was defeated by a vote of 99 noes to 72 ayes, a majority of the southern members voting against the bill. On the tariff question, which was subsequently discussed, Mr. Buchanan expressed the views which he has ever since entertained, to wit: that duties ought to be raised merely for revenue, though in the indirect operation of a tariff of duties, certain necessary domestic manufactures may be more benefited than others. "I confess," he said, when the debate had taken a sectional turn, "I never did expect to hear inflammatory speeches of this kind within these walls, which ought to be sacred to union. I never did expect to hear the East counselling the South to resistance, that we might thus be deterred from prosecuting a measure of policy urged upon us by the necessities of the country. If I know myself, I am a politician neither of the East nor of the West, of the North nor of the South. I therefore shall forever avoid any expressions, the direct tendency of which must be to create sectional jealousies, sectional divisions, and, at length, disunion, that worst and last of all political calamities." At the next session of congress the tariff question came up as the "American system," a title bestowed on it by Mr. Clay; but Mr. Buchanan voted for it simply as a revenue measure, imperiously demanded by the exhausted state of the treasury. During the election of president by the house of representatives in 1825, Mr. Buchanan insisted on its taking place in presence of the people, with the galleries of the house open to the public, and not in secret conclave, as was suggested by some of the members and senators. He was opposed to the mission to Panama, projected and advocated with all the ardor and persuasive eloquence of Mr. Clay. Mr. Buchanan, as early

as 1824, had his misgivings as to the ultimate fate of Mexico and the South American republics, and he cautioned congress and the people of the United States against entangling alliances with them. The United States had strongly protested against the island of Cuba falling into the hands of any European power but Spain, and Mr. Buchanan was equally opposed to its being seized either by Mexico or Colombia. If either of them attempted to revolutionize Cuba, the emancipation of the slaves and a servile war would be the consequence. He held that Cuba is of immense commercial importance to the United States; but that in a practical and strategical point of view, it is of still greater consequence. It commands, from its geographical position, the entrance to the gulf of Mexico, so that any power in possession of it may, with a small naval force, blockade the mouth of the Mississippi, and thus effectually tie up one of the great arteries of our foreign commerce. The example of insurrection there might prove pernicious to the tranquillity and peace of the southern states, and spread desolation and ruin over our own country.—He took an active part in the presidential election of 1828, and the majority of 50,000, which Pennsylvania gave for Gen. Jackson, furnishes proof of the efficiency of his support. He himself was at the same time reelected to congress, and during the following session placed at the head of the judiciary committee, which position had previously been occupied by Daniel Webster. It was during this session that articles of impeachment were passed against a judicial officer, James H. Peck, judge of the district court of the U. S. for Missouri, upon which he was subsequently tried before the senate. The case was briefly this: In Dec. 1825, Judge Peck decided against the claims of the widow and children of one Antoine Soulard to certain lands in the state of Missouri and the then territory of Arkansas. Luke E. Lawless, of St. Louis, had been one of the counsel for prosecuting the claim, and when the decision of the judge in regard to the matter was published, Mr. Lawless wrote an article for a newspaper in which he, in respectful language, enumerated the errors into which the judge had fallen. Upon this, Judge Peck had him summoned, and not only deprived him of the right to act in his profession, but actually committed him to prison. Mr. Lawless made complaint to the house of representatives, where his memorial was referred to the committee on the judiciary. The committee unanimously reported articles of impeachment against the judge, which were adopted by the house and presented to the senate, and upon which the latter body resolved itself into a court of impeachment for his trial. Five managers were chosen by ballot on the part of the house to conduct the prosecution, viz.: James Buchanan of Penn., Henry R. Storrs of N. Y., George McDuffie of S. C., Ambrose Spencer of N. Y., and Charles Wickliffe of Ky.

William Wirt and Jonathan Meredith were the counsel of Judge Peck. The trial was conducted with great ability on both sides, and became celebrated in the annals of American jurisprudence. Mr. Buchanan closed the case, confining himself solely to the legal and constitutional questions involved, and to pointing out the difference between the principles which govern English courts and those which under the constitution must govern those of the United States. Though the senate, by a vote of 22 to 21, refused to punish Judge Peck, it shortly afterward unanimously passed an act obviating whatever technical objections then stood in the way of his conviction, and so framed the law that no judge has since ventured to commit a similar offence. In 1881, at the close of his 5th term, Mr. Buchanan voluntarily withdrew from congress, but was soon afterward selected by Gen. Jackson as envoy extraordinary and minister plenipotentiary at St. Petersburg. In this capacity, he concluded the first commercial treaty between the United States and Russia, which secured to our merchants and navigators important privileges in the Baltic and Black seas. In 1883, on his return from St. Petersburg, Mr. Buchanan was elected to the U. S. senate. A great revulsion in politics had taken place during his absence from the country. A rupture had occurred between Gen. Jackson and Mr. Calhoun, which eventually led to the dissolution of Gen. Jackson's first cabinet; a new tariff had been enacted after an impassioned struggle, and the battle against the renewal of the charter of the U. S. bank had begun and been led to a final issue. The first symptoms of that sectional animosity which has since been gradually on the increase, were already observable in and out of congress. It was, indeed, impossible that such important measures as the removal of the deposits from the U. S. bank, the abrogation of its charter, the tariff and the force bill, should follow each other in quick succession and affect such a variety of interests, without exciting those who felt themselves aggrieved to the most determined resistance. That resistance extended even to the government officials, and with a man of Gen. Jackson's unbending character, naturally led to a pretty general removal from office. The cry of "proscription" was raised in consequence, and an attempt was made by Mr. Clay and his followers to deprive the president of the power of removal from office without the advice and consent of the senate. Mr. Buchanan argued the necessity of appointing officials by the president alone during the recess of congress, and exposed the personal hostility to Gen. Jackson which prompted all these proceedings. The opposition of the U. S. senate to the acts and measures of Gen. Jackson rose to historical importance, and only terminated with the close of that extraordinary man's career, when that body itself expunged the record of its animosity by a decisive vote.—During the session of 1835-'36, a new element was introduced into

national politics, as to which Mr. Buchanan has never made any secret of his views. As he perceived, the ideas of liberty and equality which swayed the public mind of Europe toward the close of the 18th century, had, in their indefinite expansion, embraced the cause of the African negroes. With the peace of Paris, in 1814, the doctrine of liberty and equality, as far as it related to Europeans, had effectually received its quietus; but the sovereign princes who, during the same year, met at the congress of Vienna, thought this a fit occasion to exhibit their regard for the negroes, in other words, to raise the standard of liberty for the blacks out of Europe, while that of the whites in Europe was hauled down and furled. The emperor of Russia, the king of Prussia, and the emperor of Austria, could without danger proclaim that every negro touching their soil should be free. They had none but white serfs, and there was no likelihood of negroes taking refuge in their countries. They could contend against the slave trade in which they had never been directly or indirectly interested, and they risked nothing in proclaiming the abstract right to freedom of the negro, after they had made a covenant among themselves to put down by force any struggle for constitutional liberty in Europe. The government which, about that time, was established in France on the embers and hot ashes of revolution, was but too glad to turn the attention of Europe to America, Africa, and the West Indies; while England, above all other countries, was most interested in holding up negro slavery to the scorn and detestation of Europe. The example of America had much to do with the first French revolution, and that brilliant example had to be tarnished and rendered odious by exhibiting the contrast of negro servitude. At the period referred to (1835), the slavery agitation was yet in its infancy; it was confined to a small body of persons who printed and published a few abolition papers in the north, and occasionally circulated copies of them in the southern states, through the mail. The only political bearing of the agitation was through petitions to congress for the abolition of slavery in the district of Columbia. Yet as insignificant as these incipient steps appeared to the majority of public men in the United States, Mr. Buchanan perceived the ultimate political consequences of the movement. He desired to stifle the agitation in the bud, by some act of congress which should prevent the question of slavery from being raised and discussed in that body. He wished to receive the petitions or memorials for the abolition of slavery in the district, and then declare, after respectfully considering them, that congress had no power to legislate on the subject. "I repeat," said Mr. Buchanan, "that I intended to make as strong a motion in this case as the circumstances would justify. It is necessary that we should use every constitutional effort to suppress the agitation which now dis-

turbs the land. This is necessary as much for the happiness and future prospects of the slave as for the security of the master. Before this storm began to rage, the laws in regard to slaves had been really ameliorated by the slave-holding states; they enjoyed many privileges which were unknown in former times. In some of the slave states prospective and gradual emancipation was publicly and seriously discussed. But now, thanks to the efforts of the abolitionists, the slaves have been deprived of these privileges, and, while the integrity of the Union is endangered, their prospect of final emancipation is delayed to an indefinite period. To leave this question where the constitution has left it, to the slave-holding states themselves, is equally dictated by a humane regard for the slaves as well as for their masters." Other statesmen, and among them Daniel Webster, who, at that time, opposed the motion of Mr. Buchanan, by degrees came to approve of it, and the senator from Massachusetts, in his celebrated 7th of March speech (1850), almost in as many words reëchoed the views and sentiments of Mr. Buchanan on this subject.—It is hardly necessary to say that Mr. Buchanan sympathized with the struggle of the Texans against Santa Anna, then president of Mexico, and urged the recognition of the independence of Texas by the United States; so, too, at a subsequent period he advocated the admission of Texas into the union.—Toward the close of Gen. Jackson's administration, the French indemnity question had risen to a threatening importance. Gen. Jackson insisted on the prompt payment by France of the debt due to our citizens, and there really seems to have existed on the part of Louis Philippe, then king of the French, an honest disposition to discharge that debt. But the foreign policy of that unfortunate prince had already given umbrage to the opposition, his conduct in regard to the affairs of Poland and Italy had estranged the liberal party, and the suspicion that the care for his own family made him sacrifice the honor and glory of France, began to prevail. Accordingly when he recommended to the chambers to provide for paying the indemnity, the chamber of deputies rejected the proposal by a majority of 8 votes. This was simply a refusal of the indemnity by the French government, and Gen. Jackson thereupon demanded an appropriation of \$3,000,000 for the increase of the navy, and the defence of our maritime frontier. Mr. Buchanan, in supporting this demand of the president, reviewed the whole question, and so clearly established the justice of the claim, and the error into which the French government had fallen, that the payment of the money was no disgrace to France, and could by no one be ascribed to other than honorable motives.—A very important question arose on the admission of Michigan and Arkansas into the Union. Objection was made to the right of voting of resident aliens, which right Mr. Buchanan sustained; holding that aliens, who were residents of the north-western territory, had a right, under

the ordinance of 1787, to exercise the elective franchise.—Having been a supporter of Jackson's administration from the beginning, Mr. Buchanan gave the celebrated expunging resolutions, introduced by Mr. Benton, his ardent support. During Mr. Van Buren's presidential term Mr. Buchanan's powers as a debater came especially into play. The whole talent and energy of the opposition were brought to bear on the leading measure of the administration—the establishment of an independent treasury. Clay, Webster, and John Davis, of Massachusetts, were especially pitted against Mr. Buchanan, in a combat which involved not only the success of the measure, but the ascendancy of the democratic party. Mr. Van Buren had not the same hold on the people's affections which distinguished his predecessor. He had been elected by a diminished majority of the popular vote, and the opposition, from this fact alone, had conceived new hopes of success. To defeat the independent treasury was to defeat Mr. Van Buren's administration, and to secure, in 1840, the election of a whig president. The presidential campaign was indeed commenced at the very outset of Mr. Van Buren's administration. During Jackson's administration, Mr. Buchanan had been the leader of a victorious phalanx; under Mr. Van Buren he defended an unpopular measure, against an overwhelming combination of talent and circumstances. His arguments in support of the independent treasury, his review of the history of the late U. S. bank, his financial exposition of the wants of the country, his views on the currency, on the influence of moneyed institutions and corporations on the moral and political conditions of the country, may now be profitably consulted by the student of history.—The question of the preëmption rights of settlers on the public lands being raised, Mr. Buchanan defended them on the ground of justice to the settler, and economy to the government. Another important question arose under Mr. Van Buren's administration in regard to the alleged interference of federal officers in elections. A bill was introduced which proposed to punish by a fine of \$500—the one moiety payable to the informer and the other to the United States—and by a perpetual disability to hold office under the United States, any officer of the government below the rank of a district attorney who should by word, message, or writing, or in any other manner whatsoever, endeavor to persuade any elector to give, or dissuade any elector from giving, his vote for the choice of any person to be elector of president and vice-president of the United States, or to be a senator or representative in congress, or to be a governor or lieutenant-governor, or senator or representative, within any state of the Union, or for the choice of any person to serve in any public office established by the law of any of the states. This measure was opposed by Mr. Buchanan with all the powers of his mind, and was soon abandoned.—The election of Gen. Harrison left the



democratic party, in both houses of congress and in the majority of states, in what was then deemed a hopeless minority. The revulsion in business had produced a revulsion in politics, and it was natural for the opposition to endeavor to regain in the shortest time the ground which they had lost during 12 years of democratic rule. One of the first measures introduced during the extraordinary session of 1841 was the repeal of the independent treasury. This accomplished, the way was paved for the recharter of a U. S. bank, but Gen. Harrison died before he had an opportunity of signing the bill, and his successor, John Tyler, vetoed it. Its successor, the "fiscal corporation," shared the same fate; not, however, before Mr. Buchanan had been afforded an opportunity of humorously opposing it.—On the arrest of McLeod, a person who had boasted of having been concerned in the outrage committed on the American steamboat *Caroline*, during the Canadian rebellion of 1837, and the demand of the British government for his surrender, Mr. Buchanan took ground against yielding to the demand, and contended that if McLeod were actually guilty, he should be tried and punished according to the laws of the state where the crime was committed. This view of the subject also prevailed with the administration. McLeod was tried for murder in the state of New York; but, as he was acquitted, the case received a natural solution independent of the action of either government. The repeated vetoes of President Tyler exasperated the whig majority in congress to such a degree that Mr. Clay seriously introduced a proposition to abolish the veto power conferred by the constitution on the president. On the other hand, Mr. Buchanan contended that, so far from limiting the power of the people, the veto power was a potent means of doing them justice. It was but a curb on the momentary supremacy of faction, and a means of safety to the people of the weaker states. Mr. Buchanan also opposed in secret session the ratification of the Webster-Ashburton treaty, not so much because the north-eastern boundary line between the United States and the British provinces of North America, determined by that treaty, did not correspond with what he thought it ought to be, as because he believed that it did not settle other matters of dispute then existing between the two governments.—The most important part of Mr. Tyler's administration consisted in the steps which he took for the annexation of Texas. Mr. Buchanan, as has already been stated, was one of the earliest advocates of that measure. In his remarks on the subject, he observed that: "While the annexation of Texas would afford that security to the southern and south-western slave states which they have a right to demand, it would, in some respects, operate prejudicially upon their immediate pecuniary interests; but to the middle and western, and more especially to the New

England states, it would be a source of un-mixed prosperity. It would extend their commerce, promote their manufactures, and increase their wealth. The New England states resisted with all their power the acquisition of Louisiana; and I ask, what would those states have been at this day without that territory? They will also resist the annexation of Texas with similar energy; although, after it has been acquired, it is they who will reap the chief pecuniary advantages from the acquisition." Mr. Buchanan urged immediate action, and adverted to the fact that had Mr. Jefferson delayed the acquisition of Louisiana but for one short month, that invaluable territory could not have been acquired without involving our country in war. The treaty of annexation received only 15 votes in the senate; nevertheless, after the election of President Polk, Texas was finally admitted by joint resolutions. Mr. Buchanan was the only member of the committee on foreign relations in the senate who reported favorably on the admission, and it was his last senatorial act.—With the accession of Mr. Polk to the presidency, Mr. Buchanan had, as secretary of state, the initiation of those measures which he had hitherto defended as chairman of the committee on foreign relations in the senate. England and America had both claimed the whole north-western territory—Mr. Polk in his message to congress, and the British premier in a speech in the British parliament. The protocol between Mr. Buchanan and Mr. Packenham induced England to accept the compromise line of lat. 49° N. Mr. Buchanan had felt himself obliged to offer this line, because Mr. Tyler had offered it before him, but it was rejected by Mr. Packenham. Hereupon Mr. Buchanan, in an elaborate state paper, exhibited the claims of the United States to the whole territory, and concluded by a formal withdrawal of his offer. This decided the fate of the controversy. It amounted virtually to a dismissal of Mr. Packenham as a negotiator, and shortly afterward produced a direct proposal from the British government to settle the boundary on the terms first proposed by Mr. Polk. The British government declared this to be its ultimatum. In this dilemma Mr. Polk referred the proposition to the senate, and the senate advised its acceptance.—Our difficulties with Mexico were not so easily settled. Irritated by the advance of our troops to Corpus Christi, she had crossed the Rio Grande, and commenced hostilities without a declaration of war. The president and his cabinet held that there was no alternative but to repel the attack by force, and to compel a settlement of all the outstanding questions at the cannon's mouth. Congress shared these views, and at once passed the necessary acts and appropriations. How that war was conducted without meeting with a single reverse, how our land and naval forces distinguished themselves by their skill and daring, how our volunteers participat-

ed in the glory of our regular army, and how the war at last terminated with the capture of the enemy's capital, let history tell. Mr. Buchanan's office was to aid the president with his counsel, and to watch for a favorable opportunity to conclude a peace at once advantageous and honorable to the country. That opportunity arrived; an armistice was concluded, and a treaty of peace followed, which added vast possessions and wealth to the republic. It has been contended that still better terms might have been obtained—that the Sierra Madre might have been made the boundary line between the United States and Mexico. This may be so. Additional territory might, perhaps, have been acquired, but not without additional sacrifices of blood and treasure. To avoid European intervention, in the shape of mediation or guarantee, was the main object of Mr. Buchanan, as set forth in his instructions to Mr. Sidel, our minister to Mexico.—At the close of Mr. Polk's administration, Mr. Buchanan retired to private life; but his views of passing events were freely expressed on all occasions. He watched with sorrow and apprehension the progress of the slavery agitation in the northern states. He believed that it must, in the end, lead to an agitation in the opposite direction, in the southern states, and that great national calamities must result from the movement. He regarded it as a stigma on his native state, that the *Wilnot* proviso should have been set in motion by a member of congress for Pennsylvania, and brought the whole energy of his mind to bear against that measure. At an early period, while yet in the cabinet of Mr. Polk, he wrote his Harvest Home letter to his friends in Pennsylvania, advising the extension of the Missouri compromise line of lat. 36° 30' N. to the Pacific ocean; but the proposition, when introduced into congress, was voted down. At last, by the joint efforts of Clay, Webster, Cass, and their friends in both houses, the compromise measures of 1850 were passed, which gave to the country a temporary respite from sectional agitation. Soon after the passage of these measures, Mr. Buchanan wrote a letter to a union meeting held in Philadelphia, in which he fully approved them, stating the reasons why the people should acquiesce in them, and exhorting them in most emphatic language to do their whole duty as citizens of a confederate republic.—One of the first acts of Mr. Pierce's administration was the appointment of Mr. Buchanan as minister to England. A principal object of his mission was the Central American question, which the so-called Clayton-Bulwer treaty had complicated, but not settled. Mr. Buchanan discussed the whole matter in an elaborate and perspicacious protocol, but unfortunately the controversy still exists. Our relations with Spain also came under his notice. Various cases of complaint had arisen on our part, and at last one of our vessels, the *Black Warrior*, was fired into by a Spanish war steamer on the coast of Cuba. President Pierce thought the

opportunity had arrived for settling all difficulties at once by a proposal to purchase the island of Cuba at a price which no other nation but the people of the United States would be willing to pay for it, and which should enable Spain to extricate herself from her financial embarrassments. This delicate negotiation was confided to Mr. Soulé, then our minister to the court of Madrid; but the fact being well known that Spain, since 1830 (the period of the quadruple alliance between her and the powers of England, France, and Portugal), has been more or less dependent on France and England, not only in her foreign policy, but also in all important matters regulating her internal affairs and the very nature of her government, the president thought it advisable that our ministers to England and France should act in concert with Mr. Soulé, and for that purpose meet at some place on the continent of Europe, not subject to either of the powers named, and there confer freely as to the course of action most likely to produce the desired result. Ostend was first selected for the place of meeting; but the conferences were subsequently adjourned to Aix la Chapelle. The American ministers kept written minutes of their proceedings, and of the conclusions arrived at, for the purpose of future reference and the information of their government at home. These minutes were afterward styled a "protocol," though they contained nothing but memoranda to be forwarded for consideration to the authorities in Washington. They were not intended to be submitted to a foreign power. They contained no proposition, laid down no rule of action, and in no manner whatever interfered with our regular diplomatic intercourse. The president desired to know the opinions of our ministers abroad on a subject which deeply concerned the United States, and the ministers were bound to furnish it to him. Their minutes exhibited the importance of the island to the United States, in a commercial and strategical point of view, the advantages that would accrue to Spain from the sale of it at a fair price, such as the United States might be willing to pay for it, the difficulty which Spain would encounter in endeavoring to keep possession of it by mere military power, the sympathy of the people of the United States with the inhabitants of the island, and, finally, the possibility that Spain, as a last resort, might endeavor to Africanize Cuba, and become instrumental in the reënacting of the scenes of St. Domingo. The American ministers believed that in case Cuba was about to be transformed into another St. Domingo, the example might act perniciously on the slave population of the southern states of our own confederacy, and there excite the blacks to similar deeds of violence. In this case, they held that the instinct of self-preservation would call for the armed intervention of the United States, and we should be justified in wresting the island by force from Spain.—Mr. Buchanan returned to the United States in April, 1856. The common

council of the city of New York tendered him the hospitalities of the city, and his whole journey thence to Lancaster, Penn., his home, resembled a triumphal march. The democratic convention, which assembled at Cincinnati in June following, nominated him unanimously for the presidency, and he was elected, receiving 174 electoral votes from 19 states.—Immediately after his election the popular passions, which had divided the Union almost into 2 hostile camps, began at once to subside, so that, at the time of his inauguration, in March, 1857, the country looked forward with confidence to a period of political calm, and to a new era of national prosperity. But the Kansas territorial question, which had so largely entered into the presidential canvass, was still unsolved; the Central American difficulties had not been settled by the Dallas-Clarendon treaty; no decided steps had as yet been taken in regard to the filibuster movements which embroiled our foreign relations; and the claims of our citizens against Spain remained wholly unadjusted. The country, it is true, had become tired of the slavery agitation; but the expectation was raised that it would be impossible for Mr. Buchanan to satisfy both sections, and to enlist the representatives of both in his support. Mr. Buchanan, however, took an early opportunity to let his sentiments on the Kansas question be known to the public. In an address which he delivered to the students of Franklin and Marshall college, at Lancaster, in Nov. 1856, Mr. Buchanan remarked that the object of his administration would be to destroy any sectional party, no matter where it existed, whether in the North or in the South, and to restore, if possible, that national, fraternal feeling between the different states, that had existed during the days of the fathers of our republic. So, in his inaugural address, delivered in March, 1857, he clearly expressed himself on the slavery agitation, and the mode in which the difficulties in Kansas were to be settled. But there was a party in Kansas which, firmly believing that they constituted the majority of the people, refused to obey the laws enacted by the local legislature of the territory, though these laws had been recognized by congress; and they went so far in opposition to them, that they elected a rival legislature, which attempted to enact different laws for the government of the people of the territory. These acts the president, in his capacity of chief executive officer, could not recognize as legal, while the governor of the territory himself pronounced them revolutionary, and required the presence of federal troops to preserve the public peace. Meanwhile, that territorial legislature recognized by congress passed an act for the election by the people of delegates to a convention to frame a constitution for the state of Kansas. An election was accordingly held, and the delegates returned met at Lecompton, and proceeded to perform their task. It has been objected by

the opponents of Mr. Buchanan's administration, that frauds were committed during this election, that some counties were not represented at all, and that the convention did not represent the majority of the people. To this the friends of the administration replied, that every facility was given to the voters, that frauds were committed on both sides, that all the populous counties were represented, and that when a majority refuse to vote, as it is alleged was done during the election of members of the convention, the men thus abstaining from exercising the franchise, are construed to abide by the act of those who do vote, no matter whether the voters constitute a majority or a minority of the electors. The convention, after a protracted session, completed its work; but, contrary to the general expectation, submitted nothing but the slavery clause to the ratification of the people. Now it was contended by some that the convention was bound to submit the whole constitution to a vote of the people; while others, though they would have preferred that mode of action, held that there were examples enough on record in the history of admissions of states, in which the constitution framed by the convention was not submitted to the people, and that, therefore, this omission could not invalidate the act of the convention in a legal or constitutional point of view. Beside, it was contended that the convention had submitted the most important part—the slavery clause—to a direct vote of the people, declaring that if the clause were voted down no slavery should exist in the state. While this new agitation for "popular sovereignty" was going on, and before the people had voted on the clause submitted to their approval, congress assembled. Mr. Buchanan thought this the proper time for stating his views on the subject, though he refrained from making an actual recommendation to congress. In his treatment of this question Mr. Buchanan had no other object than to act as peace-maker between the 2 great geographical sections of the Union. All men foresaw that Kansas must be a free state; but he held, that if the question was settled by the admission of the state with the Lecompton constitution, then the South could not complain that its rights had been abandoned and prejudiced; while the North, which was sure of enjoying the substance of the quarrel, could well yield that point. The president also held to the power of the people of Kansas to "change their constitution within a brief period" after being admitted into the Union, notwithstanding a clause in the constitution, which, after the year 1864, requires a two-thirds vote for that purpose. Mr. Buchanan considered that clause to be null and void by the very declaration of rights, and corroborated this view in a special message to congress, Feb. 2, 1858, after the Lecompton constitution, with the slavery clause in it, had been submitted to congress. The admission of Kansas with the Lecompton constitution

passed the senate by a handsome majority; but it was defeated by a small majority in the house. A committee of conference, however, was asked for by the senate, and agreed to in the house, which led to the passage of a new bill in spirit much the same as that which had been lost in the house, but submitting the whole subject indirectly to the vote of the people of Kansas. If the vote is cast in the affirmative, then the president is authorized to admit Kansas as a state by proclamation; in the opposite case, she shall not have the right to present herself again for admission till she shall have the requisite population to entitle her, under the constitution of the United States, to at least one member of congress. In the spirit of conciliation, and the latter clause being conformable to his own views as expressed in his annual message above quoted, Mr. Buchanan gave his assent to this bill.—A rebellion in Utah also came to a head shortly after Mr. Buchanan's accession to office. The Mormons had assumed an air of defiance against the government of the United States, and openly resisted its authority. They treated the loyal citizens of the United States as Gentiles and enemies, and formed dangerous alliances with the Indians, while increasing their ranks by constant accessions of emigrants from Europe, sharing the same doctrines with themselves. Mr. Buchanan resolved to crush the spirit of resistance to law and order in the territory, by bringing the offenders against it to condign punishment. For this purpose, a military expedition was organized against Utah, whose numbers and appointments were such as to preclude all apprehension of its failure. At the same time, in order to avoid the effusion of blood and the expense of a prolonged guerrilla warfare in that mountainous country, the president consented, in Jan. 1858, that Col. Thomas L. Kane, who had in former years greatly befriended the Mormons in a time of famine, should go out to their country to endeavor to bring them to peaceful submission to the laws; and in order more decidedly to evince this humane disposition, two well-known citizens were appointed in April as peace commissioners to accompany the army. The efforts of Col. Kane proved successful; and on June 7, Mr. Buchanan communicated to congress the gratifying fact that the rebellion was ended by the submission of the Mormons, and that the reinforcements ordered for the army would not be required.

BUCHAREST, the capital and chief commercial emporium of Wallachia. It carries on an active trade in grain, wool, honey, wax, cattle, wine, and particularly in hides. In the vicinity of the town are extensive slaughter-houses (*sabanes*), noted for excellent tallow and smoked meat. There are manufactories of linen, carpets, bags, and of beads and necklaces. Cloth, glass, and porcelain are imported in large quantities from Germany. The manufacture of Turkish cloth and of gold and silver wares is chiefly in the hands of Germans, of whom

there are not less than 15,000, comprising many Jews. There are also many Spanish and Portuguese Jews, Greeks, and Armenians engaged in commercial pursuits. The warehouses are laid out in distinct quarters. Thus there is a quarter of the *Leipsikani*, i. e. Leipsic merchants, who draw their supplies from the annual fairs at Leipsic; that of the *Bacani*, or grocers; of the *Sarefi*, or bankers; of the *Kajokara*, or furriers; of the *Abadjii*, or out-fitting establishments; of the *Terkoukoulis*, or toy dealers; of the *Matchelars*, or butchers; of the *Zarnawati*, or green-grocers; of the *Skaoumelis*, or music dealers and musicians; of the *Kafetars*, or confectioners; and of the *Ferars*, or hardware dealers. The millinery establishments are in the aristocratic quarters of the boyars, and the bakers and innkeepers are to be found all over the town. There are also distinct quarters for the Jews (the *Ovrai*), for the Armenians, Servians, Bulgarians, Germans, and French.—Bucharest is the residence of the hospodar, of the Greek archbishop, of the provincial administration and courts of law, and of the foreign consuls. There are about 100 churches, 20 Greek convents, 5 synagogues, a museum with a public library, a central metropolitan seminary, a society for literature and natural history, 65 schools attended by about 1,500 pupils, 6 hospitals conducted by sisters of charity, an opera-house, a corso to which the fashionable resort in great numbers, a great bazaar, and a remarkable abundance of coffee-houses. The city was founded by Radel the Black, or Negro Wod, who conquered Wallachia toward the close of the 18th century. At the end of the 16th century it fell into the hands of the Turks, who burnt it. On Oct. 30, 1771, the Turks were defeated here by the Russians. Under the treaty of peace concluded here in 1773, the town was restored to Turkey in the following year. By the treaty concluded here, May 28, 1812, the sovereignty of Wallachia was confirmed to Turkey, but under the protectorate of Russia. In 1821, a revolt broke out among the Greek population, which called in a Turkish garrison. In 1828, the Russians took possession of the town until 1829, when the treaty of peace of Adrianople brought it under the rule of the hospodar of Wallachia, in subordination to the supreme authority of Turkey. The town was desolated by a great fire, April 4, 1847. In June, 1848, a rebellion broke out against Prince Bibesco. Turkish forces occupied the town in September, and Russian troops in October of the same year, and were stationed here until May, 1851. In July, 1858, after the outbreak of the Turkish war, Bucharest was again occupied by Russian soldiers, until Aug. 1854, from which time Austrian forces were quartered there until March, 1857. The international congress for the adjustment of the affairs of the Danubian principalities, in accordance with the regulations of the peace conference of Paris, was held at Bucharest in 1858. The town is in a dilapidated condition. The handsomest buildings are the hospodars'

palace, the metropolitan church, and the Austrian consulate. French literature is the favorite study, and the French language is frequently spoken by the educated classes. The inhabitants are noted for their frivolity and extravagant love of pleasure. Journalism is not flourishing in Bucharest, the *Bukareschter Zeitung* having ceased to appear in 1854, and the only prominent journal now being the *Bulletin*, which is an official organ. The extent of the town, which is about 4 miles from north to south, and nearly 8 from east to west, would admit of a population of 400,000; the actual inhabitants, however, are only 107,000.

BUCHARIA. See BOKHARA.

BUCHER, ANTON VON, a German divine, born in 1746, in Munich, died there in 1817. He was superintendent of the schools in Munich in 1771, and in 1778, upon the abolition of the order of Jesuits, he became rector of the gymnasium and lyceum. He was an indefatigable opponent of the Jesuits, against whom several of his writings were directed.

BUCHEZ, PHILIPPE JOSEPH BENJAMIN, a French writer, who was, for a short time, president of the national assembly in 1848, born at Matagne, in the then department of Ardennes, March 31, 1796. He commenced the study of medicine in 1815, and received his degree in 1825. He was a violent opponent of the restoration, was engaged in conspiracies against the Bourbons, and in 1821 was instrumental in founding the French carbonari society, in imitation of that of Italy. A few weeks after the establishment of this society in France, its members boasted that it numbered 200,000 men. The conspiracy was discovered and crushed, and many of those engaged in it were convicted and punished with imprisonment. The judges disagreeing in the case of Buchez, he was set free, and immediately devoted himself to scientific studies, published a treatise on hygiene, and established in 1827 the *Journal des progrès des sciences et institutions médicales*. He was also a contributor to a weekly periodical, *Le producteur*, which advocated the doctrines of St. Simon. For some time he continued to take part in this publication, although differing in many points from his collaborators; but when the pantheistic direction of the new doctrine became more apparent, he separated himself from the school. After the revolution of 1830, he established *L'Européen*, which dealt with questions of morals and of practical life. In 1838 appeared his *Introduction à la science de l'histoire, ou science du développement de l'humanité*, in which his philosophical views are elaborately presented. In concert with M. Roux he commenced, in the same year, the publication of the *Histoire parlementaire de la révolution française*, in 40 vols. The last and most important of his works, which we believe, never been completed, is the *Essai d'un traité complet de philosophie, au point de vue du catholicisme et du progrès*, 8 vols. of which

appeared in 1840. The revolution of February, 1848, threw him again into politics. He became deputy-mayor of Paris under Marrast, was elected member of the national assembly from the department of the Seine, and called to the presidential chair. When the assembly was attacked by a mob, on the 15th of May, he showed much indecision of character. He has since that time returned to private life.

BUCHHORN, KARL LUDWIG BERNHARD CHRISTIAN, a German professor of engraving, born at Halberstadt, April 18, 1770, died in Berlin, Nov. 18, 1856. On March 12, 1811, he was made a member of the Berlin academy, and in 1814 professor and member of the academical senate. In 1824 the direction of the school of engraving devolved upon him. He bequeathed \$7,500 to the Berlin academy, and \$3,000 to that of his native town, the interest of both sums to go toward the support of poor artists.

BUCHNER, GEORG, a German poet, born in 1818 at Goddelau, near Darmstadt, died in Zurich in 1887. He had studied at Strasbourg and Giessen, and for some time lectured on anatomy at Darmstadt. He was an enthusiast for German liberty, and a member of the secret political societies while at the university. He was implicated in the Frankfort insurrection of 1838, and fled first to Strasbourg, and in 1836 to Zurich, where the university conferred upon him the title of doctor of philosophy. In 1836 he published a play on "Danton's Death." He left a drama, fragments of novels, and other MSS. for publication to his friend Gutzkow. He had also published during his lifetime a comedy of his own composition entitled "Leonce and Lena," and "Lucrezia Borgia," and "Maria Tudor," translated from the French of Victor Hugo.

BUCHWALD, JOHANN HENDRIK, a Danish poet, born at Vienna, Oct. 2, 1787, while his parents were travelling. He was educated in Copenhagen, served in the French army during the wars of the empire and after the restoration, till, in 1828, he was decorated with the cross of the legion of honor. In 1828 he was appointed professor of French literature in the university of Kiel, which he held till the revolution of 1848 obliged him to leave it. He has written several volumes of prose and verse, both in Danish and French, among which are "Souvernirs," the "Poetical Age of a Scandinavian," "Flowers of Kiel," "My Auditory," and the "Young Invalid."

BUCK, the male of some wild animals of chase, and of some domesticated quadrupeds; properly and generally, the male of the fallow deer, *dama vulgaris*, or common park deer of England. The term buck is also applied correctly to males of the roe (*capreolus caprea*) of Europe, of the spotted axis (*axis maxima*) of India, of the antelopes of all species, of the wild and domestic goat, and of the rabbit; improperly, to the male of the American deer (*cervus virginianus*), of the black-tailed deer (*cervus macrotis*), and of the Mexican deer (*cervus mexicanus*). The application of the term buck to the

3 species of deer last named, and yet more to the American elk (*Cervus Canadensis*), is incorrect, because the true name of the males of those deer which rank as *cervi* is stag or hart, while that of the female is hind. Wherever the word buck is correct of the male, doe is proper of the female. The young of both varieties are indiscriminately known as fawns, though of the young of the hart and hind calf is the true term. The buck of the fallow deer of England is of 2 varieties, the one spotted, which is said to be descended from the spotted axis of India, the other deep brown, which is said to have been introduced from Norway by James I., who was enthusiastically devoted to the chase, especially that of the buck, and in whose reign the royal buckhounds were first kept up as part of the regal establishment. It is remarkable that where fallow and red deer are kept together in the same parks, as is often the case in Great Britain, they never associate in companies, much less are ever known to breed in common, but carefully avoid each other, even so far as to shun the places which either species may have chanced to frequent. The bucks of the fallow deer are much smaller than the harts of the red deer, and are easily distinguished from them by their horns or antlers, which, instead of being round and pointed at the upper extremity, with several forward tines or branches, are round 'only at the base near the head, having a single pair of brow antlers, and a single pair of anterior points a little higher up the stem, above which the horns spread out into flat palmated surfaces, projecting a little forward at the top, and having several posterior sharp snags or processes. The buck, during his 1st year, is called a fawn; the 2d a pricket; the 3d, a sorrel; the 4th, a sore; the 5th, a buck of the first head; the 6th, a great buck. The fallow deer breed at two years old, and bring forth 1, 2, or 3 fawns; they come to their maturity at 3 years, and live to about 20. The rutting time of the buck commences about the middle of September, after which he is out of season, his flesh being no longer eatable. He sheds his horns in April or May, and his new ones are fully grown about the end of August. He is in height of season in July. The doe comes into season when the buck goes out, and continues until twelfth-tide. She begins to fawn in May, and continues until midsummer. The bucks herd together, and are far more companionable than the harts, and are exceedingly easy to be tamed, when they become impudently familiar and intimate. The cry of the buck is called braying or grunting, sometimes growling, as that of the hart is termed belling. The fallow deer are kept in England merely as ornaments to park scenery and for supplying venison to the table; never any longer, as of old, for sporting purposes. When wanted for their flesh, a fat doe is singled out from the herd, and shot with a rifle by the gamekeeper; for a sportsman would as soon think of shooting his mutton or beef for amusement, as of killing the domesticated deer as a sport. The venison is infinitely more suc-

culent, tender, and juicy, than that of the red deer, and it is not unusual to find the buck, in high season, with 8 and 4 inches of fat on the brisket. Various pastures produce various degrees of excellence in the venison. Where the wild thyme grows abundantly, the flesh of the deer is noted for its delicious aromatic flavor; and it is remarked that the more level and luxuriantly pastured parks of the south of England produce the fattest venison, while those of the north, abounding in broken ground, glens, and knolls, covered with broom and fern, yield it of the highest flavor.—So late as the reigns of the Stuart monarchs, shooting the fallow deer with the crossbow, coursing it with greyhounds, in the royal parks and chases, and turning it out to hunt with the buckhounds, were royal amusements. The buckhounds are still kept up, and the "master of the buckhounds" is a high, honorary court office, held by some sporting nobleman; but they no longer hunt the buck, the hart or stag of the red deer having been, for many years, substituted for the fallow buck, as being far more cunning, stronger, fleetest, and capable of supporting longer chases. In many parts of Germany, in Denmark, Norway, and Sweden, the fallow deer runs wild in the forests, and is strictly preserved for the use of royalty and the territorial nobles. It is usually driven with hounds, or beaters, and killed with fowling pieces and buck-shot. The male of the American deer, improperly called buck, comes into season, generally, in August, and continues until midwinter. He is either killed by what is called still-hunting, without the use of dogs, the hunter depending on his eyesight and wood-craft alone, and stealing upon him while feeding, ruminating, or sleeping, when he is shot with the rifle; or by driving him up to persons ambushed at what are known as stands, on the deer-paths, by which he goes to water, who generally use shot guns. In the southern states, he is hunted on horseback, with packs of foxhounds, trained to pursue his scent, which is the sweetest of all to high-bred hounds; and in the western states he is sometimes coursed with greyhounds, or the large, shaggy Scottish deerhound.

**BÜCKEBURG**, a part of the German principality of Schaumburg-Lippe. The town of the same name, with a pop. of 10,000, is well built, has 5 gates, and contains a handsome castle. In its vicinity is the summer palace of Baum.

**BUCKEYE**. See HORSE CHESTNUT.

**BUCKINOK, ARNOLD**, a German engraver on copper, in the 15th century. In company with Sweynheym, he undertook the printing of the works of Ptolemy with engraved maps (Rome, 1478). He is considered the inventor of the art.

**BUCKINGHAM**, a county of Virginia, S. E. of the centre of the state, bounded N. and N. W. by the James river, and S. by the Appomattox, was organized in 1761 and named from Buckingham, England. Area, 680 sq. m.; pop. 18,897, of whom 8,161 were slaves, and 750 free colored. The surface is somewhat hilly, and the soil not very rich, except near the

rivers. Tobacco is its great staple. The productions in 1850 were 804,711 bushels of Indian corn, 183,819 of wheat, 117,091 of oats, 2,342,987 pounds of tobacco, and 83,480 of butter. There were 2 corn and flour mills, 8 saw mills, 19 churches, and 194 pupils attending public schools. In the vicinity of Willis mountain, the principal elevation, are gold mines. Iron is found here, and valuable slate quarries have been opened near the Slate river. The James river canal passes along the border of the county. Its real estate was valued in 1850 at \$2,108,599; in 1857 at \$2,419,006, showing an increase of 15 per cent. Capital, Maysville.

BUCKINGHAM, a market town, parliamentary and municipal borough, and parish of England, in the county of its own name; pop. of parliamentary borough in 1851, 8,069. It is built on a peninsula formed by the windings of the river Ouse, which is here crossed by 8 bridges. A branch of the grand junction canal runs through it, and a branch of the London and north-western railway gives easy communication with the metropolis, 61 miles N. W. The streets are irregular, but paved, well lighted, and lined with neat brick houses. The chief public buildings are the town hall, the jail, and the large parish church, erected in 1781; there are also various chapels, a free grammar school founded by Edward VI., a green coat and national schools, 2 hospitals, and a workhouse. Buckingham once kept numbers of women employed in lace-making, but this branch of industry is now declining. There are some breweries and tan-yards, and in the vicinity are corn and paper mills and quarries of limestone and marble. The town is very ancient; it was erected into a borough by Henry VIII.

BUCKINGHAM, DUKES OR, English nobles of different families and creations, from an early date to the present day. The title of earl of Buckingham seems, at first, to have been borne by the younger sons of the Plantagenet kings; as we find was the case with the youngest son of Edward III., who was created duke of Gloucester by his nephew, Richard II., and subsequently murdered, by his orders, in the castle at Calais. The title of duke of Buckingham was borne, during the wars of the roses, by the noble family of Stafford, descended from the daughter of the above duke of Gloucester, several members of which fell, either in the field or on the scaffold, in the course of that long and cruel struggle.—In the battle of St. Albans, A. D. 1455, in which was shed the first blood in that domestic quarrel of 80 years' continuance, which required 12 pitched battles before it was brought to a close, cost the lives, as it has been computed, of 80 princes of the blood, and almost entirely annihilated the ancient nobility of England, was slain Humphrey, earl of Stafford, eldest son of Humphrey, duke of Buckingham. Ten years later than this, in the bloody battle of Northampton, fought between that city and Towcester, "in which the king's army was profligate and discomfited, and of the same

slain and drowned in the ryver fewe lesse than x thousand talle Englyshmen," was killed Humphrey, duke of Buckingham, fighting on the side of Lancaster, to which party the family had thus far attached itself.—HENRY STAFFORD, the next duke of Buckingham, although son and grandson of 2 noblemen conspicuous for their faith to the house of Lancaster, became a ward of the crown, neither his title nor his fortunes having been attained; and was subsequently married to Catharine, the sister of the beautiful Elizabeth Woodville, Edward's queen. After the death of Edward, his brother George of Clarence and his heirs having been set aside by attainder for high treason, and the appointment of Richard of Gloucester to the protectorate, during the minority of Edward V., we find this Henry, duke of Buckingham, acting as the abettor of Richard, promulgating the statement that, previous to his marriage with Elizabeth, the late king had been secretly married to the lady Eleanor Talbot, without any witnesses, by Stillington, bishop of Bath, who afterward divulged the secret; and that, consequently, his subsequent marriage with Elizabeth was void, and the issue of that marriage spurious. On the strength of this vain pretext, he proclaimed Richard III. at the guildhall, and procuring the acclamations of a certain portion of the audience, packed beforehand for the purpose, tendered the crown to Richard, as the free and spontaneous gift of the people, who were resolved to have a new prince, in lieu of the infant Edward; a gift which, after some affected opposition, the usurper pretended to accept with humility and wonder. Shortly after this, he committed Morton, bishop of Ely, whom he had for some time held prisoner in the tower, to free custody in charge of Buckingham, who, at his friend's coronation, astonished the eyes of all men by the splendor of his own dress and accoutrements, and by the magnificence of his horse's bardings, which were so heavily charged with embroideries and blazonries of burnished gold, that it was necessary to have 4 gentlemen, walking by the side of the horse, to bear up the trappings from the ground. Shortly again, however, whether, as it has been said, he was brought over by the bishop of Ely to the part of the Lancastrians, or whether ambition urged him forward, or resentment against Richard for not having better rewarded his services, he entered into negotiations with Henry, earl of Richmond, and, on being summoned by King Richard to repair to court, knowing his danger, took up arms, and, raising a great power of wild Welshmen, marched into Gloucestershire, with the intent of joining the Cornish men who had set up the earl of Richmond's standard. A rising of the Severn, however, prevented the junction; and his Welshmen having become impatient of delay and inactivity and dispersed themselves, he was obliged to seek safety in disguise. Being, however, betrayed by his servant Bannister, he was apprehended, and, on his own confession, by which he vainly hoped to obtain pardon, was

condemned and beheaded in 1483, on a new scaffold, in the market place at Salisbury.—The next duke, EDWARD STAFFORD, was restored to his rank and dignities, and reinstated in his possessions, as one of the first acts of his reign, by Henry VII. He was a man of great wealth and considerable influence, and made himself very conspicuous by the splendor of his apparel, which is described by Hall as "a gown all of goldsmith's work, very costly," on the occasion of the first entrance of King Henry VIII. into London, after his accession to the throne. For some considerable time, Buckingham was in high favor with the court; and perhaps the first thing which affected his favor was the difficulties which he is reported to have made, and the words which he uttered, in reference to the extraordinary expenditures which he was compelled to incur on the occasion of the famous field of the cloth of gold. About this time Buckingham, it appears, gave mortal offence to Cardinal Wolsey, being as proud of his unquestioned blood as the churchman, after his elevation, was forgetful of his ignoble origin. He was once, it is said, in performance of his duty of chamberlain, holding the basin for the king to wash before meat, when the cardinal dipped his hands into the vessel; whereat the proud blood of the Staffords rose so highly, brooking not to be made to play the part of serving man to the son of a butcher, that the duke, by a pretended accident, flung the water into the shoes of the prelate. Wolsey, as it is reported, promised Buckingham that he "would sit on his skirts," frowning revengefully as he used the words; whereupon, in order to show his scorn and his defiance, the proud noble repaired to court, clad in a short jerkin, so as to attract the attention of the king; to whom, on his asking the cause of that singular costume, he replied that "it was to prevent the cardinal from executing his threat, since, if he wore no skirts, they could not be sat upon." However true this anecdote may be, and whatever ill influence Wolsey may have exerted against him, there were other natural causes which weighed heavily with Henry. Buckingham was descended from Edward III., both through John of Gaunt, duke of Lancaster, and Anne Plantagenet, daughter of Thomas of Woodstock, earl of Buckingham and duke of Gloucester; to which latter line of descent he owed his own title. He was not, however, a very near kinsman of Henry's; nor was his chance of succession, at the best, more than remote; yet the Tudors were hereditarily jealous of all who could, through consanguinity, ever, by any chance, be in a position to dispute the succession; and many nobles of the family of Plantagenet had already fallen, and more were to fall, for no crime but that of their blood. Buckingham had, it appears, been thoughtless and foolish, if not worse; he had married one Hopkins, who had obtained some notoriety about that time as a wizard, concerning his chances of a royal succession; and had made use of wild and threatening language,

which might well have given umbrage to a less jealous prince than his master. He was accordingly brought to trial, the duke of Norfolk, whose son, the earl of Surrey, had married Buckingham's daughter, being the president of the court; and after a trial, the witnesses being confronted with the accused and regularly examined, was found guilty of high treason, and publicly executed on Tower Hill, in the 13th year of King Henry VIII. With him ended the ducal title in the house of Stafford; and unfortunate as that family had been, yet more so was that of Villiers, which, after 4 reigns, succeeded to its dignities, since it failed, not alone in fortune, but in character and honor.—During the remainder of the reign of Henry VIII., and those of his immediate successors, Edward VI., Jane Grey, Mary, and Elizabeth, there was no dukedom of Buckingham; but, in 1615, the 9th year of James Stuart of Scotland, in whose court every thing was venal, from the tenure of office, the chastity of women, the honor of men, to the ermine of the judges, the place of cup-bearer was bought for GEORGE VILLIERS, a younger son of Sir Edward Villiers, of Brookesby in Leicestershire, born Aug. 20, 1592, died Aug. 24, 1628. He had a fine person, a handsome face, a ready wit, a fluent tongue, manners of the most approved French finish, a power of conciliating and winning where he chose to do so, and an audacity of insolence and of ambition, which overbore all opposition, and won its way, where merit halted inefficient and in vain. Beyond this he had nothing; his mind was of the most mediocre order, and he seems to have lacked alike the capacity and inclination for eminent crime, or for the pursuit of virtue. To the desire of some of the leading nobles, Pembroke, Hertford, Bedford, and others, to displace and overthrow one low-born and infamous minion of the English, or rather Scottish, Otho, is to be ascribed the rise of this worthless man. Anne of Denmark was with difficulty induced to accede to the scheme of advancing George Villiers with the king, in order to subvert Robert Carr, earl of Somerset; as, it seems, she had formed a clearer and truer estimate of the young man's character than any of the others. "My lord," she said to Archbishop Abbott, who was employed to gain her coöperation in the plan, "you know not what you desire. If Villiers gain the royal favor, we shall all be sufferers. I shall not be spared more than the others. The king will teach him to treat us all with pride and contempt." And so it fell out; for the scheme was pushed successfully, without regard to the queen's advice. On St. George's feast, he was made gentleman of the privy chamber, and the next day was knighted. Only 2 years later, the new favorite ventured to try his power against that of the celebrated Bacon, who had presumed to take part against him in an unseemly transaction regarding the forced marriage of the daughter of Coke with Sir John Villiers, Buckingham's brother. But Bacon, soon finding himself unable to contend against



the new influence, succumbed, and was rewarded by his appointment as lord chancellor, and his creation as baron of Verulam. From that day forth, George Villiers became, to all intents and purposes, the king of England. He was already baron, viscount, earl and marquis of Buckingham, privy councillor, knight of the garter, master of the horse, and lord high admiral of England. The distribution of peerages, offices, church preferments, the direction of the courts of law, the control of all departments of government, were his alone; and, by the sale of every thing previously held sacred, as also by possessing monopolies of most articles in daily use, he was able to make his wealth grow *pari passu* with his power. Year after year, his power and influence continued to increase; until, in 1623, he went off in company with Prince Charles, afterward the unfortunate Charles I., to Madrid, with the secret connivance of the king, to bring about a marriage between the heir of the English throne and the Spanish infanta. Buckingham's intolerable arrogance, however, broke off the match, which was exceedingly distasteful to the people of England, as it was understood, not probably without some shadow of reason, that the marriage would be accompanied, or preceded, by the conversion of the prince to the Roman Catholic religion. Buckingham, who was created duke during his absence in Spain, seems to have been actuated only by a desire of mortifying and disgracing the earl of Bristol, who was English minister at Madrid, and of wantonly displaying his authority. The worst feature of the whole matter was its ruinous effect on the character of the prince of Wales; who here received lessons, which he never unlearned, of simulation and dissimulation. For a time, owing to his conduct in relation to the Spanish marriage, Buckingham fell into suspicion if not into disgrace with the old king, who had not, however, the courage to resist the impetuous arrogance of his favorite, or the calm and serene obstinacy of his son; but the popularity which the favorite gained with the people, and with what was known as the country party, together with the influence he had acquired over the weak yet stubborn character of the prince, more than recompensed him for the loss of the dying king's affections. His last act, in the reign of James, was to negotiate an alliance with Henriette Marie, the daughter of Henry IV. of France; but James was already dead before the treaty could be ratified, though his death did not prevent the celebration and consummation of the marriage, almost before his body was cold in the grave. Over Charles I. continued the dominion of Buckingham, in a form even more obnoxious than that which he had exercised over the father; and as he governed the king, so was he governed by his favorite, the earl of Holland. He made alliances with foreign powers, and broke them, at his own pleasure; involved England in war with both France and Spain, the 2 Catholic countries, which it had been the lifelong dream of King

James to conciliate at all hazards; and would have been impeached by the house of commons, in 1626, when the king appointed him chancellor of the university of Cambridge, in order to manifest his contempt of parliament, and dissolved the parliament in order to prevent its further action against his favorite. After this, Buckingham instigated and commanded an expedition against the isles of Ré and Oléron, which terminated in the disgrace of the British arms, in the loss of 1,200 soldiers and 20 stand of colors. Buckingham was the last to retreat. Notwithstanding the notorious incapacity of the man, and the emphatic enunciation of the house of commons, "that Buckingham was the cause of all the national calamities," Charles named the favorite commander-in-chief of the new expedition to be sent for the relief of the Protestants of La Rochelle. On the same day which was marked by the denunciation of the house of commons, Buckingham's physician, Dr. Lamb, was murdered in the street by a London mob; on the next the metropolis was thus placarded: "Who rules the kingdom? The king! Who rules the king? The duke! Who rules the duke? The devil! Let the duke look to it, or he will be served as his doctor was served!" He had too much courage to regard the menace; yet the menace, whether it had any connection with the event or no, was accomplished; for one John Felton, a lieutenant in the army, who had been unjustly superseded and deprived of his arrears of pay, stabbed him mortally in Portsmouth, a few hours before the intended sailing of the expedition. The assassin, who was a religious fanatic as well as a discontented soldier, pleaded guilty to the commission of the crime, confessed his delusion, expressed contrition, and died penitent and composed.—GEORGE VILLIERS, second duke and son of the preceding, born Jan. 30, 1627, died April 7, 1688. He was superior to his father in ability, in profligacy, and in the depth and ignominy of his fall. But, although he occupied himself, more or less, in government intrigues and cabals, they were rather connected with personal squabbles and small party conspiracies, entered into for individual purposes and objects, than with any affairs of national and general interest. Indeed, with the exception of a few intestine affairs, especially that concerning the succession of the duke of York, there was no question that can be said to have been of national or general interest during the frivolous period of Charles II. He was educated at Trinity college, Cambridge, was abroad at the breaking out of the civil war, but returned shortly afterward, and served the king under Prince Rupert and the lord Gerard. At the death of Charles I., his estates were confiscated; he sought in vain to obtain their restoration at the hands of parliament, and travelled abroad until 1648, when he returned with Charles II.; was present with him in the disastrous battles of Dunbar and Worcester; and, on the failure of the attempt, followed the prince to the continent, and served as a

volunteer in the French armies, under Turenne. He found means, however, again to reconcile himself to the powers that were, and, again returning to England, married the daughter of the Presbyterian Lord Fairfax, to whom his estates had been assigned by parliament, on the defeat of the royal cause. The want of principle, however, which he had displayed, did not affect him injuriously with Charles II., who, immediately on his restoration, appointed him master of the horse. He was one of that corrupt party of confidential ministers, who were designated as the *cabal*, a word formed, after the manner of an acrostic, out of the initials of their names; but, throughout the reign, he was distinguished only for political dishonesty and social profligacy. On more occasions than one, he was in secret correspondence with the enemies of the court; and was, it can scarcely be doubted, guilty at least of misprision of treason, if not of plotting the dethronement and, perhaps, the death of the king. He set up Monmouth against the duke of York; it is almost certain that he was, more or less, privy to the Ryehouse plot; and he certainly, in the last instance, plotted with the dissenters, the Anabaptists and fifth monarchy men, together with Shaftesbury, for the overthrow of the government. His private life was a series of base broils, shameful intrigues, and mingled adventures of cowardice, impudence, and audacity. He was challenged by Ossory, but contrived to mistake the appointed time and place. He killed Lord Shrewsbury, whose wife he had seduced, in a duel—the profligate woman, disguised in a page's dress, holding the horse of her paramour in order to witness the bloody scene; and then, carrying his abandoned mistress to his own house, sent his own injured wife home to her father. He instigated the notorious Col. Blood to kidnap the venerable duke of Ormond and hang him at Tyburn, in which he almost succeeded. At last, he fell into utter contempt, which no man ever more justly merited, with all parties; was banished from court; ordered into the country, which he hated; stripped of all his employments; deserted by all his infamous associates; and at length died, poor, neglected, and unregretted, at Kirkby Moorside, in Yorkshire. He was not without abilities; he displayed some literary talents, and left a passable comedy, the “Rehearsal;” but his accomplishments and attainments were all mostly superficial; as his only ambition seems to have been to gratify the caprice of the moment, and shine, for that single point of time, preëminent in whatever was the whim of the world for the present minute. The title of Buckingham has since passed into the family of the Chandos Temples, which has produced no person of note.

BUCKINGHAM, JAMES SILK, an English traveller and author, born at Flushing, near Falmouth, in 1784, died in London, June 80, 1855. While yet a child he lost his father, who had been a seaman, but then occupied a small farm. He went to school at Falmouth,

and was intended for the church, but preferred going to sea, made a few voyages to and from Lisbon, was taken prisoner by the French, and, on his returning home, went into service with a bookseller at Devonport, continuing there 4 years. He again attempted the sea; deserted from a king's ship; tried the law for a short time; married before he was 20; succeeded to some property on his mother's death, which he lost by the dishonesty of a trustee; set up as a bookseller, on borrowed capital; became bankrupt; left his destitute wife and child in care of her friends; obtained employment in a London printing office, and eventually at the Clarendon press, Oxford; next was captain of a West India-man for some years, and afterward had charge of a ship in the Mediterranean trade. In April, 1818, he sailed for Malta, where he had made many friends, with a cargo of his own; but on reaching his destination, the plague had broken out there and he was not allowed to land. His cargo was put on shore, he went on to Smyrna, and soon learned that by some commercial failures at Malta he had lost all his property there. He now went to Egypt, offered his services to the pasha for the purpose of examining the best site for a canal across the isthmus of Suez; was robbed; returned to Cairo almost naked, and was again despatched on an exploration. He reached Suez, traced the course of the ancient canal, and having duly reported the results, was informed that the pasha had changed his mind, but wished him to purchase ships for him in India, and establish a trade between that country and Egypt. Mr. Buckingham reached Bombay in April, 1815, found it difficult to inspire the merchants with confidence in the pasha, and accepted the command of a large ship belonging to the imam of Muscat, which was to trade to China on account of that prince. But not having the East India company's license (without which, at that time, no Englishman could reside in India), he was ordered out of the country, and returned to Egypt, where the pasha granted him money, and a firman, which enabled him to travel overland to India, through Syria, Mesopotamia, and Persia, dressed as an Egyptian mamluke. He reached Calcutta in 1818, in command of the imam's frigate; but being ordered to proceed to Africa to give convoy to several vessels engaged in procuring slaves, as well as to take some on board his own ship, he threw up his command. He so much interested the marquis of Hastings, then governor-general of India, that he obtained leave to reside there; established a daily paper, called the “Calcutta Journal;” offended the authorities by the freedom of his animadversions on public affairs; was indicted, tried, and acquitted; and finally was sent home, and his press seized. Thus was confiscated an income of £8,000 a year, and a property valued at £100,000. He returned to England in 1826, and commenced a London evening paper, which did not succeed, and the “Oriental Herald,” a political and literary review, almost exclusively

devoted to East India affairs, which did. He published, in numerous volumes, his travels in Palestine, among the Arab tribes, in Mesopotamia, and in Syria and Media. He established the "Sphinx," a weekly newspaper, in July, 1827, and, about the same time, the "Athenæum," a literary journal, which passed successively into the hands of the late John Sterling and C. W. Dilke; the "Sphinx" eventually was merged in the "Spectator." He threw himself with great energy into the arena, some time before the renewal of the East India company's charter in 1833, delivering lectures on British India, all over the united kingdom, against the company's commercial monopoly, and subsequently lecturing against impressment of seamen, intemperance, the corn laws, and on other subjects of public interest. He found time for European travel, and published his tours in Belgium, Switzerland, Germany, France, and Piedmont. He joined very warmly in the popular agitation of the reform bill, and the inhabitants of Sheffield (raised into an electoral borough by that measure) returned him as their first member. He retained his seat in parliament until 1837, when he was defeated on a close contest. Soon after he retired into private life, he visited America, on a lecturing tour, freely expressing his opinions on the temperance and anti-slavery questions. Nine octavo volumes contain his travels in America, viz.: 3 on the northern states, 2 on the slave states, 3 on the eastern states, and 1 on British North America. They contain little that had not been told by previous tourists, and their author's own opinions are diffusely expressed. On his return to England he resumed his lectures, which were generally well attended. In 1843 he established a club, called the "British and Foreign Institute," which was opened with great state by Prince Albert, and had considerable success for some time, with Mr. Buckingham as its manager. The enmity of a leading writer in "Punch" was accidentally excited, and the "Institute" was literally written down, after 3 years' existence, by that lively satirist. In 1849 Mr. B. published a volume on "National Evils and Practical Remedies." In 1851 he became president of the London "Temperance League." In 1855 he published the first 2 volumes of his "Autobiography," but died in that year, before the 2 concluding volumes could appear. His latter years were passed in tranquil competence, for the East India company, with tardy justice, had granted him a pension of £300 a year, and he also had a literary pension of £200 a year from the crown.—Mr. Buckingham's private character was stainless. He possessed considerable abilities; was a graceful, fluent, and sometimes even eloquent speaker; was undoubtedly sincere; had travelled and observed much; and possessed considerable knowledge of men and things, but as a public man, his influence was limited.

BUCKINGHAM, JOSEPH TINKER, a prominent journalist of New England, is the son of

Nehemiah Tinker, of Windham, Conn., where he was born Dec. 21, 1779. His father exhausted his whole property in supporting the American army during the revolution, and died March 17, 1788, leaving a family without any means of support. Under these circumstances they became so reduced that they were obliged to appeal to the town officials for assistance, and were supported by them for a winter, when they removed to Worthington, Mass. Here Joseph was apprenticed to a farmer, with whom he remained for several years. While in this family he showed some desire for knowledge, and made himself acquainted with the rudiments of an English education. At the age of 16 he entered the printing office of David Carlisle, of Walpole, N. H., who combined with his printing business the publication of the "Farmer's Museum." Here young Buckingham first became acquainted with the elements of the profession in which he was afterward to gain distinction. After remaining a few months with Carlisle, he entered the office of the "Greenfield Gazette," where he remained until 1800, when he removed to Boston. In 1803 he performed the duties of prompter for a short time in a company of comedians, who played during the summer months in Providence and Salem. In 1806, having changed his name, by application to the legislature, from Tinker to Buckingham, which was his mother's family name, he commenced life for himself by the publication of the "Polyanthus," a monthly magazine, which, after an existence of a year, was discontinued and not resumed until 1812. In 1809 Mr. Buckingham published for six months the "Ordeal," a weekly magazine. In 1817, in company with Samuel L. Knapp, he commenced the publication of the "New England Galaxy and Masonic Magazine," which continued in his possession until 1828, when he sold it. In 1831, in connection with his son, he commenced the publication of the "New England Magazine," which was continued under his care until 1834, and contained contributions from numerous writers who have since attained great literary eminence. In 1824 he published the first number of the "Boston Courier," a paper which he continued to edit until June, 1848. Mr. Buckingham was several times elected to the legislature, and, in 1847-'48, and 1850-'51, to the senate of Massachusetts. He has also published, "Specimens of Newspaper Literature, with Personal Memoirs, Anecdotes and Reminiscences," 2 vols., Boston, 1852; and "Personal Memoirs and Recollections of Editorial Life," 2 vols., Boston. His present residence is in Cambridge, Mass.

BUCKINGHAMSHIRE, or Bucks, an inland county of England, bounded N. by Northamptonshire, E. by Bedfordshire, Hertfordshire, and Middlesex, W. by Oxfordshire, and separated from Berkshire on the S. by the river Thames. Area, 464,980 acres, of which 440,000 are said to be arable and pasture land; pop. in 1851, 168,554. It was originally a purely Saxon county, and is said to derive its name from the

word *Buchenheim*, the home or country of the beech trees, which are still common throughout the county. The surface is pleasantly diversified, the N. parts being undulating, the middle occupied by the fertile vale of Aylesbury, and the S. traversed by the Chiltern hills. The principal rivers are the Thames, Thame, Ouse, and Colne. The most important productions are butter, cattle, lambs, poultry, &c., which are carried to the London market. The Aylesbury sheep are famous for the weight and excellent quality of their fleeces. Buckingham, Aylesbury, Marlow, and Wycombe are the chief towns. The north-western and great western railways, and the grand junction canal, pass through the county, and send off branches to several of its towns. It gives the title of earl to the family of Hobart.

BUCKLAND, ORRUS, master machinist in the U. S. armory at Springfield, born at Manchester, Conn., Aug. 10, 1799, spent his boyhood and youth upon his father's farm, in the duties of which he assisted, receiving such rudiments of education only as were then taught in the common schools of his native state. At the age of 20 he commenced his career in the wheelwright shop of his brother. In 1822 he entered the employ of the Monson and Brimfield manufacturing company, at Monson, Mass., and afterward of the Boston and Springfield manufacturing company, at Chicopee Falls, Mass. At the latter place he was employed from 1824 to 1828, making patterns, drafting, and in various ways assisting in the building of the machinery used in the manufacture of cotton fabrics. In 1828 he accepted from Col. Lea, then superintendent of the Springfield armory, an invitation to enter the service of the United States. He began his labors at the armory as pattern maker, in which province he had no superior, advancing from that position to that of designer of machinery and tools for the manufacture of arms. By systematic study, he made himself familiar with the construction of every part of the arm, and thus laid the foundation of his future usefulness and success. At different periods he has occupied the post of inspector in all the different departments of the armory. He has also been employed by the ordnance department as an inspector of cannon. His skill and judgment in the construction of arms soon becoming apparent, he was intrusted with the duty of improving and remodelling old weapons and contriving new ones, for the U. S. service. About the year 1842, a desire was manifested by the government for the introduction of labor-saving machines into the armories, and his inventive genius was called into action. He has produced a set of "stocking" machinery, comprising 14 machines for working the gun-stock, from the rough state in which it comes to the armory, to almost a finish. Among the more important of these are the following: 1, a machine for bedding the barrel, or cutting the groove in the stock to re-

ceive the barrel; this machine performs its work perfectly in one minute's time; 2, a machine for profiling the stock; 3, a machine for cutting on the butt-plate, and boring and tapping for the screws of the same; 4, a machine for cutting on the 8 bands which bind together the stock and barrel, at one operation; 5, a machine for cutting off the surplus wood between the bands; 6, a machine for second or finishing the stock; 7, a machine for cutting the bed in the stock, to receive the lock—a beautiful piece of work, and original in construction; 8, a machine for cutting the bed for the guard, with mortise, screw-holes, &c.; 9, a finishing machine for cutting in the band-springs, boring for band-spring and ramrod spring wires, grooving for ramrod, &c. Of this whole set of machines, 2 of them only retain the leading principle of their original inventor, Mr. Thomas Blanchard. By the help of this machinery the gun-stock is completed from the rough in about an hour, occupying about 23 minutes in passing through the machines, and about 87 minutes of hand labor in finishing and smoothing. A military commission was sent to this country by the British government to examine the national armories, and the mode of manufacturing arms by machinery. This examination resulted in an order from the British government for a duplicate set of the stocking machines, which are now at work in the English manufactory of arms at Enfield, near London. This was followed by an order from the Russian government for another set of the same machines, and a third from the London armory company, a private establishment.—Among other inventions and improvements of Mr. Buckland's may be mentioned machines for the following operations: for turning the upper band of the musket, a very irregular and eccentric piece; for punching, cutting, and trimming various parts of the arms; for finishing the cone; for milling screws; for finish-milling and tapping the cone seat; for checking the comb of the hammer; for first-boring the barrel; for turning the barrel; for milling the edges of the lock-plate. Two other machines, being the most recent inventions of Mr. Buckland, deserve a more particular notice. One of these is for rifling or cutting the grooves in the barrel of the new model rifle-musket. Of these grooves there are 8 of equal width, and equal also in width to the spaces between them. These grooves are very shallow, being only .015 of an inch in depth at the breech of the barrel, and regularly diminishing in depth to .005 of an inch at the muzzle. This regular diminution in depth was the difficulty to be accomplished. Buckland's rifling machine cuts the 8 grooves at once, and so perfectly as to leave them without the slightest burr, scratch, or defect of any kind, of a fine and brilliant polish, and enabling one man to rifle from 50 to 60 barrels per day, against the 8 or 10 which were all that could be accomplished by the old method, and dispensing entirely with the after draw-polishing to which

the grooves made by the old mode, and indeed by all other machines so far as is known, have to be submitted. The last invention of Mr. Buckland is one of his greatest and most useful—a machine for cutting the thread of the screw on the inside of the barrel and for milling the breech-screw, so as to produce a perfect interchange, every screw fitting any barrel to which it may be applied. To accomplish this has until recently been regarded as almost a mechanical impossibility, and was so pronounced by Mr. B. himself a few years ago. Within the year 1857, however, he produced at the first trial a very beautiful machine which does its work with a surprising degree of perfection. Mr. Buckland has never received from the government any other compensation than per diem wages.

BUCKLAND, WILLIAM, D.D., dean of Westminster, an English geologist, born at Axminster, Devonshire, in 1784, died Aug. 14, 1856. From Winchester college, he went in 1801 to Oxford university, and in 1808 was elected fellow of Corpus Christi college. In 1813 he was appointed reader in mineralogy, and in 1818 reader in geology. In this double capacity he greatly advanced practical scientific knowledge in the university. The singular clearness, graphic force, and full information of his lectures made the study of geology very popular. He may be said to have founded the geological museum in Oxford, sparing neither time, travel, nor expense, to supply it with specimens, which he classified, arranged, and described. This collection is more particularly rich in the remains of the larger fossil mammalia, and other animals from the caves in different parts of England and Germany. As early as 1813 he commenced writing on his favorite subject, communicating to the transactions of the geological society his "Descriptive Notes" of 50 miles of a coast survey of Ireland, which he had made in company with the Rev. W. Conybeare, dean of Llandaff. In 1820 he delivered a lecture before the university, which was published as "*Vindiciae Geologicae, or the Connexion of Geology with Religion explained.*" The object was to show that science was not at variance with the Mosaic accounts of the creation and deluge. In 1823 he published *Reliquiae Diluviana*, being the expansion of a paper he had communicated to the royal society (of which he was elected member in 1818), respecting the fossil remains of the elephant, hippopotamus, tiger, bear, hyena, and sixteen other animals, discovered in a cave at Kirkdale, Yorkshire, in 1821, for which paper the society voted him the Copley medal, the highest honor in their gift. His theory, put forth in this work, and not very well received by the scientific world, was, that beasts of prey which have long ceased to exist in Europe had resorted to the oolite caves of Yorkshire, previous to the deluge; had dragged into these retreats, for food, such animals as then frequented the neighborhood; had been overtaken in these caves by the

deluge; and that the discovered bones were the remains of themselves and their prey. In 1825 Mr. Buckland married Miss Mary Morland, of Abington, received the lucrative appointment of canon of Christ church, and took the degree of doctor of divinity. In 1837 appeared his Bridgewater treatise on "Geology and Mineralogy," which has always been the most popular of the series. He bestowed such unusual pains upon this work, that it was repeatedly rewritten before it went into the compositors' hands; it was recopied as many as seventeen times; and the manuscript which finally was prepared for the press was the fourth copy which Mrs. Buckland had made with her own hands. Dr. Buckland's own chirography was so singularly feeble, straggling, and indistinct, as to be almost illegible. This was his last and greatest work, but he contributed several valuable papers to the transactions of the geological society, including his two anniversary addresses as president, and his description of the south-western coal district of England. From its formation, he identified himself with the British association for the advancement of science. He was on habits of intimacy and correspondence with most of the scientific men of his time, and with many of the leading public characters of England and the continent. In 1845, when the deanery of Westminster became vacant, by the elevation of Dr. Samuel Wilberforce to the see of Oxford, he succeeded him as dean of Westminster, on the nomination of Sir Robert Peel, with whom he was on the most friendly terms. On accepting this, he relinquished his canonry at Oxford, but continued professor of geology and mineralogy. Removing to London, his first step was to secure public admission to Westminster abbey without the fees which the dean and chapter had previously received; he was appointed trustee of the British museum, where his practical good sense was found valuable; he actively employed himself in advancing the sanitary movements in London; and he was mainly instrumental in procuring the establishment of the national museum of practical geology in London. In 1850 his career of activity and usefulness was arrested. His mind sank under the pressure of its multifarious labors, and insanity (though in its gentlest form) rendered his retirement necessary. In Islip, near Oxford (a college living which he long had held), he found a retreat, and was there attended, during the last 6 years of his life, by the untiring and affectionate care of his wife. Dr. Buckland published several sermons, preached on various occasions, all of them distinguished rather by good sense than scholastic divinity. In manners, he was simple and social. His appearance was that of a country gentleman.—FRANCIS BUCKLAND, his eldest son, is author of a volume of zoological researches, published in 1857.

BUCKLE, HERBERT THOMAS, an English scholar, born at Lee, Nov. 24, 1822. His father was a wealthy merchant, and Mr. Buckle enjoyed

not only the advantages of an excellent education in Dr. James Thomas Holloway's school at Gordon house, Kentish Town, but also of having at his command an excellent and extensive library in his father's house. After leaving Dr. Holloway's school, he entered the paternal counting-house; but instead of giving his attention to business, he devoted it to chess, and exhibited so much aptitude for this game that he gained the reputation of being one of the first players of England, if not of the world. His father dying in 1840, leaving him an ample fortune, he was enabled to indulge his taste for books, and devoted himself henceforward exclusively to literary pursuits, for which he was by his secluded and studious habits better qualified than for more active occupations. The 1st part of a work which has gained for him a considerable reputation appeared in 1857, entitled "History of Civilization in England," and is occupied exclusively by only a part of the introduction. It has been received with much favor by the most intelligent minds in England and in the United States, and created a desire for seeing the future volumes of the work, in which the author pledges himself to show that "the progress which Europe has made from barbarism to civilization is entirely due to its intellectual activity." Since the issue of this 1st part, Mr. Buckle has delivered a brilliant lecture on woman, at the royal institution, which has attracted much attention. Mr. Buckle's general place of residence is in Oxford terrace, London. He lives with his mother, in the utmost retirement, spending his days and nights among books. He excels as a whist player not less than as a chess player; but he leads the life of a recluse, and his mind seems concentrated upon his historical work.

BÜCKLER, JOHANN, otherwise known as SCHINDERHAMMER, and JEAN L'ÉCOSSAUME, a famous chief of brigands, born at Nastatten, in the duchy of Nassau, in 1779, guillotined at Mentz, Nov. 21, 1808. The son of poor parents, he had already distinguished himself by juvenile robberies, when he entered the service of the executioner of Bärenbach. Being lodged for stealing cattle from his master, he ran away and adopted the profession of sheep-stealer. He was detected and imprisoned, effected his escape, and joined the *chauffeurs*, a band of robbers which, during the period of the French revolution, spread terror along both banks of the Rhine. Under the leadership of Rothbart, or the Red-Bearded, he was twice captured, and the audacity and address with which he made his escape from the prisons of Saarbrück and Sinsheim, in which he had been confined, gave him great celebrity. He next united with the banditti of Peter the Black. At length he was elected captain of a troop which declared war especially against the Jews, and became the terror of the whole region of the Rhine. The wealthy farmers used to purchase from him, at high prices, passports which would enable them to traverse the country undisturbed.

He was taken prisoner again in 1799, but his escape was immediately accomplished, and with more vigor than before were travellers, returning from their annual markets, plundered by his band. He was tenderly beloved by Juliet Blasius, of Badenweiler, and a poem which he composed in her praise was a favorite song at fairs and religious festivals. His men, with their faces covered with black, made expeditions against the principal proprietors, and broke their furniture piecemeal till their extortions were granted. The vigorous police organization of Napoleon drove these robbers from the French bank of the Rhine. They were forced to penetrate into Germany, and after protracted efforts by civil officers, Bückler with his comrades was at length arrested by the bailiff of Limburg. He was taken successively to Frankfort and to Mentz, where he was condemned and executed, displaying an unflinching intrepidity. He confessed his crimes; but as he had not committed murder nor robbed the poor, and had always displayed a romantic generosity, a pardon was to the last expected for him. During the period of his greatest power, he often rendered aid to the poor, and relieved in person the sufferings which were caused by his subordinates. His life was written by Sevelinges, in 2 vols., Paris, 1810.

BUCKMINSTER, JOSEPH, D. D., an American clergyman, born at Rutland, Mass., Oct. 8, 1751, died at Reedsborough, near Bennington, Vt., June 12, 1812. By early association and hereditary bias, he was destined for the clerical profession. In boyhood he showed unusual activity and ardor, both in athletic sports and mental pursuits, and at the age of 15 entered Yale college. He was known in college for the kindness and gravity of his character, and became an excellent Latin scholar, mastering the standard Roman authors so thoroughly, that he was able through life to make the happiest quotations from them. Upon attaining his bachelor's degree, he received, as one of the 3 best scholars, the free enjoyment of an added 3 years at the institution, upon the funds of the Berkeley scholarship, and "from a high spirituality of feeling," assiduously devoted this period to theological studies. Among his fellow-students at Yale and life-long friends were those whose names earliest appear in the brief roll of American authors—Barlow, Trumbull, and Dwight. When the period of his scholarship terminated he became a tutor in the college, and fulfilled the duties of that office for 4 years; thus passing 11 years of his life among the halls and walks of his alma mater. During his residence there he passed through a great moral crisis, the result of his sensitive temperament and profound religious inquiries, and after experiencing much depression and mental conflict, and seeking light from a prayerful investigation of the Scriptures, he was enabled conscientiously to define his position as a religious believer, and, in a form of self-consecration harmonizing with the belief of the New England Calvinists, to devote himself to

the work of the ministry. In 1779 he was ordained pastor of the North church of Portsmouth, N. H., whence his 2 predecessors had been called respectively to the presidencies of Yale and Harvard colleges. The friendship of a remarkably gifted and cordial fraternity of clergymen, the liberal disposition of his people, their comparative prosperity and fine social culture, rendered his position as agreeable as it was influential. He soon after married Sarah Stevens, the carefully educated daughter of the Rev. Dr. Stevens, of Kittery Point. The period of his ministry has been called a great transition era in New England history, both civil and ecclesiastic. While there were yet few newspapers, the clergy were the oracles of the scattered communities upon all subjects of public interest, and were expected to preach upon important political events. Dr. Buckminster cherished an intense admiration of the leaders of the federal party, which so far tintured his occasional homilies as sometimes, and particularly in one instance, to call forth animadversions from those of a different political creed. With this exception, his clerical course was singularly calm and prosperous. He was especially remarkable for the fervor of his devotional exercises, and the general effect of his preaching was to produce emotion rather than conviction. Among the memorable traits and incidents of his life and character, were his simple tastes and habits, his favorite exercise in the garden in summer and in wood-chopping in winter, his careful preparation of sermons, his attention to the aged and poor, his consolations of the distressed, his love of sacred music, in which he excelled, his paternal care and sympathy at home, and his vivid interest in the controversy which, during his later years, made so wide a division between the conservative and liberal Congregationalists. The change of views arrived at and maintained by his idolized and gifted son, Joseph Stevens Buckminster, the discussions between the two, and the struggle between love and duty, self-respect and independence of mind, so obvious throughout, form one of the most interesting features in the memoirs of both. Although differing in creed, and conscientiously tenacious of his own opinions, he preached his son's ordination sermon. When the latter died in the morning of his days, the prophetic heart of the dying parent realized the event before the news arrived, and he himself expired a short time after his son's decease. From the time of the death of his first wife, followed as it was by the bereavement of another wife and of many children, Dr. Buckminster suffered from occasional liability to nervous depression; yet the stringent duties of his profession, his vigorous maturity of mind and body, the society and sympathy of his accomplished son and daughters, were rare ameliorations to the sorrows of his life. He died while on a journey for his health. One of his daughters has published an interesting biography of her father and brother: "Memoirs of the

Rev. Joseph Buckminster, D. D., and of his son, the Rev. Joseph Stevens Buckminster," by Eliza Buckminster Lee, Boston, 1851. — JOSEPH STEVENS, eldest son of the preceding, an American clergyman, born at Portsmouth, N. H., May 26, 1784, died in Boston, Mass., June 9, 1812. Few men, whose professional career was so brief, have left so permanent and endeared a memory. As a child his personal beauty, elastic temperament, instinctively religious spirit, love of knowledge, and great aptitude in its acquisition, made him the idol of his home and neighborhood. His first instruction was parental, and from the parsonage he went, in his 11th year, to Exeter academy, where he was soon distinguished as a scholar, and for moral excellence and personal fascination. The letters addressed to him by his father at this time, offer a singular illustration of the economies, strict morals, and minute supervision then characteristic of domestic training in New England. Beside the prescribed course at Exeter, he read with avidity the standard English works in general literature. Entering Harvard college in 1797, he maintained his reputation for scholarship, was admired for his thoughtfulness and mirth, the graces of his manner and the winning kindness of his disposition, became the favorite orator of the clubs and reasoner of the debating societies, and "as a belles-lettres scholar," says one of his classmates, "he was unequalled." He received the honor of the English oration on graduating, and the fragments preserved of this juvenile performance amply justify the traditional charm of his mind and expression. As assistant in Exeter academy, after leaving college, he was one of the teachers of Daniel Webster. At this time he pursued a wide range of general reading, and after beginning his preparation for the ministry, left the academy to reside with a relative in summer at Waltham, and in winter in Boston, while pursuing his theological studies. After he had preached his first sermon, he was invited to supply the pulpit of the Brattle-street church in Boston, and in 1804 that society unanimously elected him their pastor. He wanted a few months of 21 years of age when he thus became the minister of one of the largest and most intelligent religious societies in New England. He at once rose to the level of the highest expectations of his friends; his church became a shrine for the lovers of pure and devout eloquence, and his parsonage the favorite resort of the most intellectual society of Boston. The social graces of the man were indissolubly blended with the sacred gifts of the pulpit orator, and the gentility and warmth of his manners, and the knowledge and wit which marked his conversation, made his home delightful to his friends in the intervals of severe professional duties. Although the charms of his voice and the expressiveness of his countenance and gestures greatly enhanced the immediate effect of his discourse, yet those of his sermons which were collected and published after his decease are

remarks for purity of thought and finish of style, and in some instances unite the best traits of the palmy days of French pulpit eloquence to those of the standard old English divines. The claims on his strength, so faithfully met, caused a failure of health, which induced him to seek rest and a change of air and scene in a voyage to Europe. In England he enjoyed the companionship of Dr. Rees, Granville Sharp, Wilberforce, and especially of Dr. Taylor of Norwich, and Gilbert Wakefield; in Switzerland he met Benjamin Constant, Madame de Staël, and Count Rumford; and visited the scene of the then recent destructive avalanche which overwhelmed Gollau, of which he wrote an admirable description. He resided several months in Paris, and his letters, written during the whole period of his European travels, indicate a strong sympathy with literature and its associations; indeed, the scholar and man of elegant tastes were always coexistent in him with the divine. While in England he purchased many works for the Boston Athenæum, and on his return was an active member of the Anthology club, famous in the literary annals of that metropolis for the many gifted men which it included, and for having given birth to one of the first American purely literary periodicals. His love of literature and high estimate of its moral and social function were eloquently manifested in an oration which he delivered before the Phi Beta Kappa society of Harvard university, in 1809, on the "Dangers and Duties of Men of Letters." At the period of his last illness, he was deeply engaged in German studies, then just beginning to attract the attention of the theologians in this country. In 1808 he superintended the republication of Grisebach's Greek Testament, containing the most important various readings, and was afterwards appointed first lecturer on Biblical criticism in the university at Cambridge. Meantime his parochial and pulpit labors, and the correspondence and conversation growing out of the earnest religious controversy of the time and community, fully and fruitfully occupied him. His portrait by Stuart gives a clear impression of the intellectual grace of his countenance and expression, and the memoir by his sister keeps fresh the tradition of his attractive gifts and presence. Other memorials are his 2 volumes of sermons, and the monument at Mount Auburn, consecrated to his memory a quarter of a century after his decease. After the onerous duties of election week he sank under repeated attacks of epilepsy. The feeling occasioned in Boston by his death did not soon pass away, and his surviving associates always remembered and spoke of him with deep emotion.

**BUCKS**, a county of Pennsylvania, bordering on New Jersey, and bounded N. E. by Delaware river, which is here navigable by steamboats. This county possesses valuable quarries of limestone and sandstone; and iron, plumbago, titanium, and zircon are found in some localities.

The northern part is hilly; the remainder of the surface is moderately uneven; the whole is in a high state of cultivation. The inhabitants are generally farmers or market gardeners, who supply Philadelphia with grain, fruit, meat, and dairy produce. The productions in 1850 were 1,157,781 bushels of Indian corn, 1,168,710 of oats, 246,586 of potatoes, 95,842 tons of hay, and 2,886,182 lbs. of butter. There were 98 flour and grist mills, 50 saw mills, 23 tanneries, and a vast number of factories of almost every kind. The Philadelphia and Trenton railroad passes through the south-eastern part. This was one of the 8 original counties founded by William Penn in 1682. It was named from the county of Bucks in England. Area 600 sq. m.; pop. in 1850, 56,091; capital, Doylestown.

**BUCKSPORT**, a commercial, lumbering, and manufacturing village in Hancock co., Maine, on the east bank of the Penobscot, just above Orphan island and the narrows, 16 miles S. of Bangor; pop. in 1850, 3,318. During the war of 1812-'15 it was captured by the English, who sailed up the river as far as this village. A large, substantial fort, built 1846-'50, on the opposite bank, at a bend of the river, now commands the narrows and the river in both directions. The village is regularly laid out on a rising slope. Neat and tasteful houses, with overshadowing trees, give it a very pretty appearance from the river. An excellent academy and good schools are found here. As the Penobscot seldom freezes at this point, Bucksport becomes the winter harbor for Bangor vessels, as well as for its own commerce, which employs 100 sail, engaged in the lumber, coal, and fishing trade. A ferry connects it with Frankfort.

**BUCKSTONE**, JOHN BALDWIN, an English actor and playwright, born in the isle of Wight, in 1800. Bred to the law, he deserted the solicitor's office for the stage in 1824. He made his debut in tragedy. The effect of his performance induced him to try low comedy, in which he soon disclosed a rich vein of talent. He was first distinguished at the Surrey theatre, London, from whence he was transferred to the boards of the Adelphi. In 1840 he went to the Haymarket. In 1842 he visited the United States. In 1852 he became lessee of the Haymarket theatre. As an actor he is exaggerated without being vulgar, his ripe humor being under the control of a keen intelligence and nice taste. His fault is an extreme mannerism of utterance. As a playwright, he has been very successful. He wrote "Victorine," the "Wreck Ashore," the "Dream at Sea," "Poor Jack," "Jack Sheppard," "Agnes de Vere," "Green Bushes," and upward of 80 melodramas and farces, mostly adapted from the French. His comedies, "Married Life" and "Single Life," are of less merit.

**BUCKWHEAT** (*polygonum fugopyrum*, Linn.), a species of grain supposed to be a native of Asia, and called *blé Sarrasin*, or Saracen wheat, by the French, after the Saracens or Moors, who are believed to have introduced it



into Spain. It thrives on poor soils, comes rapidly to maturity, and is most frequently planted in tracts that are not rich enough to support other crops. It is extremely sensitive to cold, being destroyed by the least frost, but it may be planted so late and reaped so early as to incur no danger from that source. Its flowering season continues for a long time, so that it is impossible for all the seeds to be in perfection when it is reaped, and the farmer must decide by careful observation at what period there is the greatest quantity of ripe seeds. Buckwheat does not exhaust the soil, and by its rapid growth and its shade it stifles weeds, prevents their going to seed, and leaves the field clean for the next year. It is sometimes ploughed into the ground in a green state for manure. The seeds of buckwheat furnish a white flour, from which a popular gruel is made in Germany and Poland, and breakfast cakes in England and America. Cakes, and a dark heavy bread, are made from it also in the provinces of France, especially in Brittany. Its flowers secrete a large amount of honey, and are, therefore, always covered with bees; and in the middle United States it is often cultivated for their food. The grain is superior to oats as nutriment for horses and poultry, and is especially efficacious in making the latter lay eggs. The green plant is said to greatly increase the milk of cows, but according to Thaer and Hauser, it produces cramps and a sort of intoxication in swine and sheep which feed largely upon it.—There is another kind of buckwheat distinguished from the preceding by the sharper angles of its seeds, and by its tougher stocks. It is earlier and taller, less sensitive to cold, and produces grain in larger quantity, but of an inferior and bitter quality. It was introduced from Tartary into Russia in the beginning of the 18th century, and it has thence been dispersed all over Europe. Hence its name of Siberian buckwheat, or *polygonum Tartaricum*.

BUCOLICS, a style of poetry introduced by the Greeks, more especially by the Sicilians, descriptive of the delights of the primitive rural life of the herdsmen and mountain shepherds, whose rugged and picturesque days were, for the most part, spent among the forest glades and upper pastures of the mountains, which alone, under the burning suns and in the arid climates of Greece and southern Italy, could afford verdure, shade, or water during the intense summer heats. These poems in Greek, the most beautiful of which are by Theocritus and Moschus, both Sicilians, are generally composed in hexameter verse, and always in the Doric dialect, the life of the woods and hills belonging especially to the Dorian, as did that of the city, with its theatres, baths, and academies, to the Ionian race. Sometimes they relate purely to the topics to which they assume to belong; sometimes they strike a much higher strain, as that of Theocritus, which describes the killing of the Nemean lion by the

Doric hero, Hercules, or the beautiful elegy of Moschus on the death of Bion. The characteristics of these Greek idylls, for so they were called by the writers, are a peculiar racy freshness, belonging to them alone; a love of nature, and an appreciation of its sounds and sights, such as are found in the writers of no other countries, unless it be some of the earlier English poets, from the days of Chaucer down to those of the Elizabethan era, whom the old bucolic poets of Greece also strikingly resemble in the delicacy of the thoughts and the richness and elegance of the fancy which gleam out from the shadows of a rustic and antique dialect and diction, like glimpses of evening sunshine kindling the dewy glades into emeralds and diamonds, among the rugged and rusty trunks of the pine forests, in whose whispered music they took delight. The bucolics of Virgil, though charming poems, are, except that strange one, the 4th, entitled *Pollio*, and seeming to be paraphrased from the prophecies of Isaiah, mere literal imitations of the Greek idylls; elegantly enough done, it is true, but entirely lacking the touch of nature which gives their charm to the true Greek bucolics. The only Latin writer who had an idea of rural beauty, or of the charm of rustic life and enjoyment, is Catullus, who, though his idylls do not profess directly to be bucolical or pastoral, wrote some poems, such as his "Nuptials of Peleus and Thetis," his "Atys," and his "Sirmia," which are as distinctly bucolical as if they had been written under the auspices of Pan, in the glades of Erymanthus, or among the hill pastures of Arcadia.

BUD (Gr. *φύρον*, from *φύω*, to grow), in botany, an organ which contains within itself the rudiments of stems, branches, leaves, and flowers. It is found either at the apex of a stem, or at the axil of a leaf, and is thus either terminal or lateral. Regarded externally, it is an ovoidal, conical, or spherical collection of scales, or rudimentary leaves, arranged one over the other in an imbricated manner. In cold climates a downy or resinous coating is often added to give still further protection from frost to the organs within; but in warm climates, where this protection is not needed, the leaves in the imbrication are both less compact and less numerous. In the centre of this enclosure is a growing vital point, a particle of delicate cellular matter, continuous with the cellular centre of the main stem. A bud is the first stage in the plan of vegetation, and its development constitutes the whole plant. The embryo of the seed is but a primary stem crowned with a bud. This stem elongates through its whole length in growing, and raises the budding apex above the surface of the soil, where its cotyledons expand into leaves. The plumule, or bud of the embryo, then begins its growth from the joint of these leaves, and carries up the second leaf or pair of leaves to some distance above the first, and thus by leaf after leaf, or pair after pair, the whole herb

or tree is built up, a bud or undeveloped portion always remaining at the apex. This bud is a miniature of the whole tree. Its scales have the same relative situation as the proper leaves of the species, and will themselves in the next season become leaves as the germ of the bud ascends above them. In this way, by the repeated development of the terminal bud in a direct line, the main stem is produced.—The development of the axillary or lateral buds gives rise to branches. At the axil of every leaf there appear, either perfectly or imperfectly, one or more buds. Under favorable circumstances these buds grow and form branches precisely as the original stem is formed. The branches in turn have buds at the axils of their leaves, and thus branches of a 3d order are formed, and so on indefinitely, the ultimate ramifications being termed branchlets. Some plants, as the palm, put forth no axillary buds; many during their first year are restricted to developing their main stem, but afterward the growth of the terminal and axillary buds goes on together. If every bud came to maturity, every tree would have perfect symmetry, either with alternate or opposite branches. Where the structure is opposite, there would be 2 buds near the apex of every branch, one terminal and 2 in the axils of the nearest pair of leaves; it is rare, however, that one of the 2 does not fail. This failure is in some species regular, as in the horse chestnut, where the lateral ones are checked, and in the lilac, where only the lateral ones grow, making the stem annually bi-forked. The failure is, however, in most cases as capricious as the phenomena of climate, soil, and the weather. In a luxurious soil, and in some species surcharged with sap, the predestined symmetry of the plant is interfered with not only by failure but by excess, a bud sometimes bursting forth from other parts than the axils of leaves, or 2 or 3 buds sometimes issuing from a single axil.—The flower, like the branch, is evolved from a bud, and its parts adhere to the law of arrangement which has controlled the whole development of the plant. The flower-buds and leaf-buds are identical as to situation, and the leaf of the branch passes by regular gradations into the sepal, petal, and stamen of the flower. The organ which has produced the whole plant from the embryo of the seed is not supplanted, nor its plan changed, in producing the final work of inflorescence and fructification; but for the new end now to be accomplished it receives a more delicate character.

BUDA, or OFEN, a city on the west bank of the Danube, formerly the capital of Hungary, and now that of the circle of Pesth; pop. of the town and its 7 suburbs, including that of Alt Ofen, which was annexed in 1850, 45,653, exclusive of the garrison and the students. It is distant from Vienna, in a straight line, 135 miles S. E., and from Belgrade 200 miles N. W. It was formerly connected with the city of Pesth, which lies on the opposite side of the river, by a

bridge of boats, and since 1849 by a suspension bridge 1,250 feet long; a tunnel to connect the bridge with the fortress has been in course of construction since 1852. Buda is about 9 miles in circuit, and built around the Schlossberg, an isolated and shelving rock. Its central and highest part, called the fortress, is the most regular portion of the town, and contains many fine buildings and squares. This fortress is surrounded by walls, from which the several suburbs extend toward the river. The principal edifices of the city are the royal palace, a quadrangular structure 564 feet in length, and containing 208 apartments; the church of the ascension of the virgin, and the garrison church, both Gothic structures; the arsenal, the state palace, and the town hall. Buda contains 13 Roman Catholic churches, a Greek church, and a synagogue, several monasteries and convents, a theatre, and many important military, educational, and benevolent institutions. There are several publishing houses and 8 journals established here. The observatory, with the printing establishment of the university of Pesth, is built upon an eminence to the south of the town, 516 feet above the level of the Mediterranean, and no expense has been spared to furnish it with the best instruments. There are in various parts of the suburbs sulphurous hot springs, and relics remain of baths constructed here by the Romans and Turks, the former tenants of the place. The principal trade of the town is in the wines (chiefly red wines, resembling those of Burgundy) which are produced from the vineyards upon the neighboring heights, to the amount, it is computed, of 4,500,000 gallons annually. There are also cannon foundries, and a few manufactures of silk, velvet, cottons, woollens, and leather. The boats of the Danube steam-boat navigation company are built here, giving employment to about 600 persons. Buda is the usual residence of the governor of Hungary, and of the public authorities.—It has been thought that this city occupies the site of the old Aquincum mentioned in the "Itinerary" of Antoninus. During the Hungarian monarchy, Buda was the residence of its kings, by whom it was enlarged and adorned, especially by Matthias the Great. It was taken by the Turks under Solymán the Magnificent in 1526, but was recovered the next year. It fell again into the hands of the Turks in 1529, and remained in their possession till 1686, when it was finally recovered by Charles of Lorraine, and in 1784 was again made the seat of government. Buda has been beleaguered not less than 20 times in the course of her history. The last siege took place in May, 1849, when the Hungarian army under Görgey had driven back the Austrian troops to the western frontier of the kingdom. Two plans were discussed as to further operations: first, to follow up the advantages gained, by a vigorous pursuit of the enemy on his own ground, to disperse his forces before the Russians, then marching on Hungary, could arrive, and to attempt to revolutionize Vienna; or, to

remain on the defensive in front of Comorn, and to detach a strong corps for the siege of Buda, where the Austrians on their retreat had left a garrison. Görgey maintains that this latter plan was insisted on by Kossuth and Klapka; but Klapka professes to know nothing of Kossuth having sent such an order, and denies that he himself ever advised this step. From a comparison of Görgey's and Klapka's writings we must, however, confess that there still remains considerable doubt as to who is to be blamed for the march on Buda, and that the evidence adduced by Klapka is by no means conclusive. Görgey also says that his resolution was further determined by the total want of field-gun ammunition and other stores, and by his own conviction that the army would refuse to pass the frontier. At all events, all offensive movements were arrested, and Görgey marched with 80,000 men to Buda. By this move the last chance of saving Hungary was thrown away. The Austrians were allowed to recover from their defeats, to reorganize their forces, and 6 weeks afterward, when the Russians appeared on the borders of Hungary, they again advanced, 127,000 strong, while 2 reserve corps were still forming. Thus, the siege of Buda forms the turning point of the Hungarian war of 1848-'49, and if there ever really were treasonable relations between Görgey and the Austrians, they must have taken place about this time.—The fortress of Buda was but a faint remnant of that ancient stronghold of the Turks, in which they so often had repulsed all attacks of the Hungarian and imperial armies. The ditches and glacis were levelled; there remained but the main ramparts, a work of considerable height, faced with masonry. It formed in its general outline an oblong square, the sides of which were more or less irregularly broken so as to admit of a pretty efficient flanking fire. An intrenchment of recent construction led down from the eastern front to the Danube, and protected the waterworks supplying the fortress with water. The garrison consisted of 4 battalions, about a company of sappers, and the necessary allotment of gunners, under Major-Gen. Hentzi, a brave and resolute officer. Seventy-five guns were mounted on the ramparts. On May 4, after having effected the investment of the place, and after a short cannonade from heavy field-guns, Görgey summoned the garrison to surrender. This being refused, he ordered Kmetz to assail the waterworks; under the protection of the fire of all disposable guns, his column advanced, but the artillery of the intrenchment, enfilading its line of march, soon drove it back. It was thus proved that an attack by main force would never carry the place, and that an artillery attack was indispensable in order first to form a practicable breach. But there were no guns at hand heavier than 12-pounders, and even for these the ammunition was deficient. After some time, however, 4 24-pounders and 1 18-pounder, and subsequently

6 mortars, arrived from Comorn. A breaching battery was constructed on a height 500 yards from the N. W. angle of the rampart, and began its fire, May 15. Previous to that day, Hentzi had bombarded the town of Pesth without any provocation, or without the chance of deriving any advantage from this proceeding. On the 16th the breach was opened; though scarcely practicable; however, Görgey ordered the assault for the following night, one column to assault the breach, 2 others to escalate the walls, and a 4th, under Kmetz, to take the waterworks. The assault was everywhere unsuccessful. The artillery attack was resumed. While the breaching battery completed its work, the palisades around the waterworks were shattered by 12-pounders, and the interior of the place was bombarded. False attacks were made every night to alarm the garrison. Late on the evening of the 20th another assault was prepared. The 4 columns and their objects of attack remained the same, and before daybreak on the 21st they advanced on the fortress. After a desperate struggle, during which Hentzi himself led the defence of the breach and fell mortally wounded, the breach was carried by the 47th Honved battalion, followed by the 84th, while Kmetz stormed the waterworks, and the troops of the 8d army corps under Knezić escalated the walls near the Vienna gate. A severe fight in the interior of the fortress ensued, but soon the garrison surrendered. Of 8,500 men, about 1,000 were killed, the rest were made prisoners. The Hungarians lost 600 men during the siege.

BUDAYOON, or BUDAON, a district of Rohilkund, British India, in the N. W. provinces, bounded N. by Moradabad, N. E. by Bareilly, S. E. by Shahjehanpore, S. by Furruckabad and Minpooree, and W. by Alighur and Boolundshahur. It lies between lat. 27° 88' and 28° 29' N., long. 78° 21' and 79° 35' E.; area, 2,868 sq. miles; pop. 1,019,161, of whom 877,509 are Hindoos. The country is low, level, generally fertile, and well watered, the Ganges flowing through its S. W. part, the Ramgunga through its E. part, and the rest of the district being intersected by the Muhawa, and the Sote or Yarwuffadar.—The chief town of this district, of the same name, has a population of 21,369. It was occupied by the mutineers, and a body of liberated prisoners from Bareilly, June 1, 1857. The Europeans escaped by flight. Gen. Whitelock marched against the town and captured it, April 19, 1858, after an engagement in which the rebels lost 500 men and 4 guns. On the 80th of the same month the sepoys were again defeated about 10 miles from here, by a force under Gen. Pennyfather. The rebels were entirely subdued on May 7 1858.

BUDDE (BUDDÆUS), JOHANN FRANZ, German theologian, born at Anklam, June 25 1667, died at Jena, Nov. 19, 1729. He lectured upon theology and philosophy successively at Wittenberg, Halle, and Jena. In his writing

which are very numerous, he often sought to mediate between and harmonize opposite views. Among his principal works are, *Historia Juris Naturæ, Institutiones Theologiæ moralis, and Institutiones Theologiæ dogmaticæ*.

**BUDDEEABAD**, a strong fortress of Afghanistan, memorable as the place of imprisonment of the British captives spared from the massacres of 1841.

**BUDDHA-GAYA**, a ruined city of Bahar, much resorted to by pilgrims. It is situated near Gaya, 55 m. S. of Patna, and contains numerous remains of temples and images.

**BUDDHISM AND BUDDHA**, an Asiatic religion and its founder. Buddha (to know, intelligence) is the generic name for a deified teacher of the Buddhists, whom we call Buddhists. These hold that innumerable Buddhas have appeared to save the world, among them one in the present period, also known as Sakyamuni, or Saint Sākya, who is believed by some to have been the 9th incarnation of Vishnu; by others the son of the moon, and regent of the planet Mercury. He was a reformer of Brahminism, introducing a simple creed, and substituting a mild and humane code of morality for its cruel laws and usages. His history is to a great extent legendary, and is divided into 12 sections, viz.: 1. While in the 4th heaven he determines to save the world, and chooses to be born as the son of Sudhodana, king of Kapilavastu and of Māyā, yet a virgin; both of the Sākya genus of the Kshatriya caste, and a branch of the Ikshvākus who were of the race of the sun, kings of Ayodhya (now Oude) or even descended from Mahā Samasta, the first of all kings of the present period. 2. He descends from heaven as a white elephant; is conceived as a 5 colored ray of light. 3. He is born amid great miracles, through the right side, and as soon as born most solemnly proclaims his mission. 4. He is named Sarvāthasiddha (*sarva*, all, *artha*, wish, request, *siddha*, fulfilment); his mother dies on the 7th day after his birth; he is cared for by her sister, Prajāpati Gautami (*praja*, world, people, *pati*, master, *gautama*, sage), of the Brahminic, Gotama genus; hence he is called Gautama. 5. He chooses Gopā, also a Sākya, for his bride, and obtains her after having shown his prowess in a public game, and his great learning and skill in art. 6. After meditating on the vanity of enjoyments, he leaves his father's house and becomes a most austere ascetic and hermit. 7. He performs the most rigid penances, goes to the Bodhimanda or throne of intelligence at Gāya; sits under the Bodhidruma, or *ficus religiosa* (banian), where every Bodhisattva (intelligence of truth) becomes a Buddha. 8. He is tempted by Māra (*māra*, to die), the god of love, sin, and death; but withstands his enchantments and terrors. 9. He recollects all his previous births and those of all beings, attains thus to Bodhi (intelligence) and shines forth as the Buddha, "the awakened, intelligent, knowing" (Chinese *fo thu* or *fo*, also translated as the enlightened; Thibetan, *Sangs rgyas*;

Mongol, *Burchan*, Japanese *Budō*; the number of his names is 12,000 in Ceylon, and in a Thibetan tract 5,453). All beings become aware of his arrival, and 2 merchants from far-off lands are the first mortals who see him, offering him honey, milk, &c. 10. He "turns the wheel of faith," or becomes a teacher, "unfurls the victorious banner of the good law," and proceeds to Varānāsi, now Benares, on the Ganges; there he finds his 5 former pupils, and though he preaches in the Maghadi language he is understood by all hearers of different tongues. Many other fanciful stories, and many philosophic speculations have been interpolated amid the facts in the history of Buddha, especially in the 45 years of his sacerdotal functions. The scene of his priestly life is placed by some in the Deccan, by others in Ceylon, and by others in the Punjab, and even beyond the Indus; although, as a matter of fact, it seems to have been restricted within Oude, south and north Bahar, extending probably to the boundary of Bengal and into the Doab and Rohilkund. An enormous quantity of sculptures not far from modern Gāya, and other monuments at and near Patna, bear witness to the reality of the reformer's existence. When he appears to discharge his beneficent mission, men and women of all classes and ages, rich and poor, sick and well, flock around him. Most of the rulers become converts together with their subjects. Srāvasti (the city of hearing), on the northern bank of the Ganges, became a rival of Gāya. There Anāthapindika built a magnificent monastery, from which most of the Buddhist holy books are dated. Here Sakyamuni appoints his pupils as apostles, and performs many miracles. At first he is adverse to the admission of women to ecclesiastical life, but afterward chooses some as his agents. He is also named Sramana (*srama*, to be wearied), or the unchangeable, and is soon opposed by Brahmins and others, especially for admitting the impure and outcast to the privileges of religious asceticism. He humbles the 6 Tirthakas, or sectarian philosophers, and visitors of sacred ponds, whose lucrative occupation is ruined by the new doctrine. Calumny, conspiracies, and snares, all tricks of Māra, are unavailing against him. 11. His native city with all his kindred are most cruelly destroyed, by a king of Kosala, shortly before his death in the 80th year of his age. This causes great convulsions of nature. King Asoka raised on the spot where he died a *stupa* or mound with a column to his memory. 12. When his body is about to be burnt, the pile cannot be kindled; but after Kāśyapa has honored the feet of the dead, the "flame of contemplation" breaks out of the breast and consumes the corpse. The pearly, heaven-scented pieces of his bones, which have defied the fire, almost cause a war for their possession, but are at last divided among 7 competitors, who erect stupas over them.—Even if an actual personal existence be denied to Sakyamuni, the religious reform itself must be admitted as a fact.

Among the Buddhistic nations there is a difference of about 2,000 years as to the date of his death. As the skillfully contrived story of 83 Buddhist patriarchs in uninterrupted succession is now exploded, we prefer the Cingalese date of 543 B. C. Brahminism had become intolerable. Sākya-muni rejects the Brahma, the authority of the Vedas, the sacrifices and all Brahminic rites. Even popular Buddhism in adopting the Brahminic gods degrades them below Buddha, even below the Arhats (*arha*, to worship) or venerable priests, thus raising men above the gods. Buddha, a man, and not an incarnation of a higher being, is self-perfected. In the Vedas also, holiness, piety, meditation, and wisdom are mightier than all gods. Indian virtue, more passive than active, consists in the taming of sensuality, of one's own will, in sympathy with all beings, in self-sacrifice. As soon as sin is uprooted, infinite knowledge opens.—Originally, Buddhism was simple, ethical, and rational; and hence hostile to mythology, scholasticism, ceremonies, and priestcraft. It was benevolent and humane in the highest degree. It improved upon the Sankhya philosophy, and rendered it popular and practical. It called all men, without any distinction of quality or position, to its fold, opening to all the way of salvation, which it teaches to be attainable by purity of conduct. Castes, however, were not directly abolished, but ignored, so that they exist to this day in Ceylon, the great southern stronghold of Buddhism. "I am a *Bhikkhu*" (beggar), says Sākya-muni, without Brahminic pride. "There is but one law for all: severe punishment for crime, and great reward for virtue." "My law is one of grace for all; like heaven affording room for men and women, for boys and girls, for rich and poor." "It is difficult to be rich and learn the way." In a legend all lamps kindled in honor of Buddha ceased burning, except one offered by a poor woman. Ananda, his favorite disciple, drinks water drawn from a well by a Chandalī. Sākya-muni spoke to the people in parables under the free sky; united the scattered anchorites into communities, orders, and monasteries, some for men, some for women; also allowing persons of both sexes to be lay members without vowing chastity and mendicity. The clergy were made the foundation of Buddhistic society, whereas in other creeds the laity are the basis on which the hierarchy reposes.—The first period of Buddhism, from Sākya-muni to its recognition as a sort of state religion in the great Prāchīna or Prāsian empire and beyond Hindostan, comprehends the fixation of the dogmas, its first schisms, and œcumenic councils. Kāśyapa, the principal disciple of Sākya-muni, held the 1st council of 500 Arhats at Rājagriha, establishing the Vinaya (*vi*, before; *nī*, to conduct) or discipline based upon the Sūtras (*sū*, to sew, string) or apophthegms and sermons of Buddha. Disorders in the great monastery at Vaisālī called for a 2d council in that city during the reign of the king Kālāsoka, a great protector

of the faith, about 100 years after Sākya's demise. The history of Buddhism at that time is enveloped in the greatest darkness. Among about 18 sects 2 are prominent, viz., the Vaibhāshika (*vaibhā*, division) or dilemmists, with many subdivisions; the Saṅtrāntika (*sūtra* and *antika*, near), or close observers of the original maxima.—Alexander's invasion of the Punjab gave a great impulse to the spread of Buddhism. The Nanda dynasty of Magadha in south Bahar was overthrown by the miraculous Chandra-gupta, or Sandrakottus, who freed the Punjab from Macedonian rule, received Megasthenes at his court in Pataliputra, and united all India under his sceptre. Through his origin as a Soodra, and through the invasion in question, he broke the power of the Brahmins. His grandson Dharmāsoka, the greatest king of the Maurja dynasty, extended the empire, and being miraculously converted, became from a cruel tyrant the most pious observer and the most zealous propagator of Buddhism. Under the name of Piya-dāsi (love-gifted, pious) he published most humane edicts, many of which are found engraved on columns at Delhi and Allahabad, and on rocks near Peshawer in Guzerat, Orissa, &c., not in Sanscrit, the language of the Brahmins, but in Prakrit or popular dialects. These edicts inculcate the practice of virtues, order the construction of roads and hospitals, and even abolish capital punishment. The 3d great council was held at the command of Piya-dāsi, at Pataliputra, where 1,000 Arhats tried to cure the great anarchy caused in the church by sectarians, and false and licentious monks. At the conclusion of the council, an earthquake is said to have approved its decrees. The most probable date of this council is 218 after Sākya-muni's death (328 B. C.). Scarcely any book which passes for the word of Buddha is prior to this council, in which the decrees of the preceding councils were modified; indeed, it may be doubted whether any such book reaches even so far back. The creed was introduced into Ceylon in the first year after the 3d council, where it was preserved for a century merely by oral tradition. In less trustworthy quarters than the Cingalese there are manifest contradictions; the Nepanese believing that Sākya-muni wrote 9 books, while the Chinese derive the canon from the first council, and the Thibetans say that the Tripitaka (3 baskets) were written 2 centuries after the 3d council. In preparing the canon, Sanscrit was probably used along with other vernacular tongues by the disciples. The books of Ceylon, Burmah, Siam, are translated from the Pāli, a form of writing of the Magadhi, a dialect of the Sanscrit. The code of the 4th council, held in Kāsmira, is in Sanscrit. Unlike the Brahmins, who thought barbarians unworthy of their holy religion, the Sthaviras or elders of the 3d council had sent out apostles to preach in foreign lands, who converted the Nāgas (snake worshippers), and other idolatrous tribes of Cashmere; the Hima-

vat (snow mountain), lower Cabool, Gāndhāra now Candahar, Yavana (from *Yona*, probably Bactria, Ionia, and the satrapies of Alexander), Ujāna, now Cafristan, also received apostles. The Deccan and even Pegu, and Burmah, were not forgotten, although the creed was carried thither much later from Ceylon. Buddhism carried the elements of Indian civilization to many a savage tribe; broke up many a cruel custom and became a blessing to the greater portion of Asia. But in time the great Buddhist body was split, by its own extension, into a southern church, whose chief seat is in Deva Lanka, the divine island, or Ceylon, where it has been least altered from its ancient condition, and whence, during more than 5 centuries, it was propagated, even to further India; and a northern church, divided into many important branches, owing to the great number of nations that profess it; the Nepalese branch being less divergent from the ancient faith, than those of Tartary, Mongolia, Thibet, China, and Japan.—In Hindostan, the primitive character of Buddhism was greatly impaired by its long and bloody contest, as well as its mixture, with Brahminism, and especially with the sanguinary tenets of Sivaism; and, it finally fermented and degenerated into a medley of incongruous creeds. About the beginning of our era a new school or sect, called Mahayāna (great passage), was added to the older Hinayāna (little passage) by Nāgarjuna, a celebrated Sthavira; and another in the 6th century of our era, called Yogachara (*yoga*, junction and magic, *chara*, to go), or Tantra, a sort of Sivaistic mysticism, by the Bhikshu Asanga. Even in Ceylon heretical tenets were inserted in the code of the Tripitaka by the learned Buddha Ghoeka at the commencement of the 5th Christian century.—Among the Greek and Roman writers who have more or less imperfectly dwelt upon the men and affairs of India, Herodotus (Book i. and iv.) names the Budinoi; Megasthenes, though residing at Palibothra, does not speak of the Buddhists, although (about 300 B. C.) he gives a full account of the 5 rivers of Pentapotamia, and describes Indian manners; Strabo speaks of 3 religious systems in India (Book xv. of his geography) that of Brahma, and that of the Garmans (apparently the Sarmanes, a sort of mints, probably Buddhists); Arrian mentions a Boudyas as 8d king of India; Olement of Alexandria speaks of a deified Butta; Victorians and St. Jerome, of a Buddhas; Cedrenus and Suidas, of Budas. Olement and Jerome call that personage a gymnosophist, meaning probably the Jaina sect which worshipped naked idols, and whose chief priests were naked.—The Jesuits have endeavored to prove Buddhism to be of Nestorian origin; but the Nestorians sought the protection of the Sassanides in Persia, and came into central Asia after their expulsion from the Byzantine empire, as late as the 5th Christian century. It is more probable that Buddhism had an influence on western creeds, as, for in-

stance, on the Gnostics.—Buddhism was introduced into China by 2 ways, namely: in the south by sea, 65 B. C., and in the north through Khoten, over the great wall into Shensi, in the 5th century. From Corea, where it existed about A. D. 370, it was brought into Japan about 550 to the court of the Dairi. Some writers assert that it entered that country as early as A. D. 60. From Ceylon it found its way into Aracan, Burmah, and Pegu, then a mighty empire, A. D. 397, Siam, Laos, Anam, Cochin China, Tonquin, and Ava. From Nepal, where there is a very rich Buddhist literature, the creed came into Thibet and Mongolia, the Mongol emperors of Hindostan having instituted a patriarchate. In Thibet, great dignitaries, called (about 1480) Dalai-Lamas (Sea priests), pretended to be personified Boddhisattvas. Many Calmuck and other tribes of Tartary and Siberia also adopted this religion, and its influence is even perceived in Swedish Lapland. Its priests bear different names, as Talapoins (umbrella bearers) in Siam, Bonzes in Japan, Rahanes in Mongolia, &c.; they are dressed in yellow gowns, shave their heads, and go about bare-headed. The total number of Buddhists is about 290,000,000. In all Buddhist countries there is a profusion of temples, monasteries, *stupas*, *dhagobas* (pillars and mounds containing relics of Buddha), and other monuments overloaded with statues and sculptures of deities in grotesque forms. Among the great number of ancient grottos, containing temples and cells hewn in rock, many of them also containing monuments of Brahminic worship, we may mention those on the islands of Salsette and Elephanta, those at or near Dhumnar, Carli, Nassuk, Ayanti, and those most magnificent specimens at Ellora. Ceylon boasts of its Lova Maha Paya, with 1,600 pillars; of its mountain temples at Mahentele, grottos and temples at Dambulu galle, &c. Most of them are in ruins caused by time or by Portuguese devastation.—Of the many battles of the Buddhists with the Brahmins in India few turned out favorably for the former, one of their victories only (A.D. 473) being worthy of record. Although Buddhism was most ruthlessly overthrown during a contest which lasted for 15 centuries, still some of its traces remain in Hindostan. In the 4th century, Fa-hian witnessed its decadence, and with other Chinese pilgrims, especially Hsuan-Tsang (629-'45), recorded what remained of it and its monuments.—Having thus narrated the history of Buddhism, we now come to a summary of its doctrines, and of their principal ramifications. First of all, Buddhism maintains the vacuity, unreality, and illusiveness of nature. Naught is everywhere and always, and is full of illusion. This very nihilism levels all barriers between castes, nationalities, and conditions of worldly fortune, embracing even the vilest worm in the brotherhood of Buddhism. "All compounds are perishable," is the last sentence which Sakyamuni is believed to have uttered. The final object is Moksha, Nirvana, or the deliverance of

the soul from all pain and illusion. The endless rotation of metempsychosis is broken, by preventing the soul from being born again. This is attained by purification from even the desire of existence. These fundamental traits of Buddhism are plainly comprehended in the most ancient positive dogma, which is contained in the 4 *Aryāni Satyāni*, the sublime truths attributed to Śākyamuni in his first sermon in the gazelle-grove near Benares. These 4 truths relate to pain, its origin, its annihilation, and the way leading to annihilation. "Pain is birth, age, disease, death, the meeting with what one dislikes, the separation from what one loves, the failure to obtain what one strives for. The causes of pain are the desires, lusts, passions. Annihilation of all these causes is the third truth. The way of annihilation again has 8 parts: right view, right sense, right speech, right action, right position, right energy, right memory, and right meditation." Such is the "formula of faith," found upon many monuments, as well as in many books. The essence of Buddhistic morality is "to eschew every thing bad, to perform every thing good, to tame one's thoughts"—this is the doctrine of Buddha. As the doctrine of Mohammed is succinctly called *al-Islamu* (obedience to the precepts of the apostle), so the precepts of Śākyamuni are named the "Way (*Gatī*)," or the "Way of the 4 truths." To teach is "to turn the wheel of faith." The genuine law of Buddha Śākyamuni was contained in these 4 truths, and was altogether moral and practical. All the mythology, sacrifices, penances hierarchy, scholasticism, mysticism, which we find connected with it, have been superadded in progress of time, in different countries, and under manifold circumstances. This mixed Buddhism, as depicted in the above-mentioned *Hinayāna*, comprehends 8 sections, the *Dharma*, *Vinaya*, and *Abhidharma*. We will give an account of each in its order: I. The *Dharma* (virtue, duty, law, from *dhrī*, to support), comprehends the revelation, the dogmas, and their precepts; and in a strict sense, cosmology and cosmography, mythology, metempsychosis, and the theory of salvation. Buddhism knows of no creation. "The worlds are, from the not-beginning, in a continual revolution of arising and of perishing." Succession is the only reality; every thing else being a process and progress of becoming in the concatenation of cause and effect. This rotation has no cause, hence no beginning. It is not within the domain of the intellect to know whence all entities come or whither they go. Four things are immeasurable, viz.: the science of Buddha, space, the number of breathing beings, and that of worlds. A Buddha alone can conceive the worlds. It is heresy to believe the worlds limited or illimited, or neither limited nor illimited. Mount Sumeru is the centre of the world, as deep in the ocean as it is high above its level. This ocean is enclosed by a girdle of rocks, within 6 other concentric oceans with similar girdles, which decrease toward the periphery (the

oceans in breadth, the rocks in height), in the progression of 84, 42, 21, 10½, 5½, 2½, 1½, thousands of *yojanas* (about 5 miles each). The whole stands again in the genuine ocean known to men, in which are the 4 islands with 500 islets each. The southern island, or India, is triangular, with men of trigonic face, living 100 years, 8 yards high; the eastern, semicircular, with men of semilunar face, living 250 years, 8 yards high; the western, circular, with round-faced men, living 500 years, 16 yards high; while the northern island is quadrangular, containing the happy square-faced hyperboreans, who live 1,000 years, and measure 82 yards. *Chakravāla* (*chakra*, region; *vāla*, to encompass), or an iron wall of 8,610,850 *yojanas*, near which the sea is very shallow, surrounds the above-described group. Each such universe has its own sun, moon, stars, and hell. The Meru is like an index of a dial, shading each island, and thus producing night. Above the Meru rise the heavens in the following order: 1. *Dēva lokas*, or heaven of the gods, 6 in number, forming with the earth the *Kāma dhātu* or lust-principle. 2. Above it the *Rūpa dhātu* or form-principle, with 4 *Dhyānas* (divine and clear contemplations), of which the first has 8 heavens for the *Brahmās* and their servants; the second 8 for the gods of light; the third 8 of purity; the fourth 7 of merits, exemption from pain, beauty, &c. 3. Still higher is *Arūpa dhātu*, or formless and colorless principle, with 4 heavens, viz.: one of illimited space, one of illimited knowledge, one of naught, and the 4th of neither thinking nor not thinking. Among the extreme heavens, the lowest in position and majesty is that of the *Catur mahārāja kāyikas* (*quatuor magnorum regum comitum*), or kings of demons, a sort of magnates guarding the higher heavens. The 2d. *Trayastrimsas* (*triginta trium*) belongs to Indra, who is the highest Buddhist god. The 26th of the *Nāibāsanjñānāsanjñāyatana* (*nec velut cognoscentium nec non cognoscentium*), or the 28th and highest heaven of all, affords a life of 80,000 great *Kalpas* or periods from the origin of one world to the beginning of another. The 4th *Dhyāna*, referred to above, comprises 1,000 *Dhyānas* of the 3d kind, or 1,000 millions of worlds of lust, with 1,000 millions of 1st *Dhyānas*, and 5,000,000 of the 2d; the whole forming one great chiliocosm, or 1,000 worlds. Again, 1,000 great chiliocosms, as many as perish at each revolution, form a Buddha-territory, or system of a single Buddha. With the northern Buddhists "3,000 great chiliocosms" is a stereotyped phrase. Twenty great chiliocosms, piled one above the other, rest on a lotus-flower, of which an infinite number blossom in the "sea of aromas," each bearing 20,000 millions of worlds. The number of these aromatic seas is again 10 times as great as the number which we would write with a "unit followed by 4,456 488 zeros," and which would extend, in common print, in a line of 44,000 feet. The above-named 8 groups of worlds and

heavens are peopled everywhere by entities of 6 *Gatis* (goings or ways of re-birth), of which the first 2 are good, and the last 4 bad, viz.: 1. The way of the Devas, or gods, who, although unarowed by Buddha, have been adopted by his followers. The gods dwell in the 26 or 28 heavens, and are named accordingly; the 4 great kings, the 33, the not fighting, the joyful, the change-enjoying, the changing others arbitrarily, the assembled Brahmas, the servants of Brahmā, the great Brahmas; the gods of limited light, of illimited light, of pure light; of limited purity, illimited purity, perfect purity; of great merits, the unconscious, the not great, the exempt from pain, the well-seeing, the beautiful, the highest; illimited space, illimited science, the place of naught, that of no-thought, and not no-thought. 2. The way of men. 3. That of the Asuras, (a, not, *sura*, spirituous liquor,) or most powerful bad genii, of monstrous shapes. 4. That of unreasoning animals, divided into footless bipeds, quadrupeds, multipeds. 5. That of Pretas, goblins, monsters of hunger and thirst, giants, moving skeletons, fire-eaters, vampires, &c. 6. The denizens of hell, placed originally in 4, later in 8, at last in 136 hells of all degrees, from a sort of limbo or purgatory to the *Lokantarika Naraka*, or intermediate hell, destined for sceptics, who are the greatest of all sinners. These hells are of Brahminic invention.—As seed and plant, or egg and bird, contain and follow one another in an endless series; so is it with worlds. Innumerable worlds have thus appeared and disappeared. This chapter of world-renewals is the most contradictory and incomplete in popular Buddhism, because it grew up by agglomerating the fantastic notions of many people around the nucleus of the purer doctrine. A Kalpa is a period of destruction, and reconstruction, and a *Mahā-kalpa* or great Kalpa, as we have said, is that from the origin of a world to the beginning of a new one; it is subdivided into 4 *Asankhya-kalpas* or incalculable Kalpas, viz.: of destruction, interval, renewal, stability; each again with 20 *Antara* or intermediate Kalpas. If it would rain incessantly during 8 years on the whole globe, the number of the fallen drops would not equal that of the years of one *Asankhya*. Each destruction is announced 100,000 years in advance by a Deva, calling on all beings to avoid sin, to repent, &c. Monsters and many of the damned are reborn as men; the denizens of the lower heavens and men rise higher. At the appointed time a great cloud rains for the last time; then every thing dries up, lower beings are advanced, and only sceptics and infidels are reborn into the *Lokantarika*. The cross of nature is now annihilated; a 2d and a 3d sun dry up all flowing waters; a 4th and 5th dry up the ocean; a 6th heats the earth up to the seat of Indra; the 7th at last kindles it to a flame, which consumes the world in less than ashes, up to the heavens of the Brahmas inclusively. The liquid destruction by *anic* waters is somewhat analogous, and reach-

es beyond the 2d Dhyāna. Wind destroys still higher up the whole 3d Dhyāna. The scheme of the intensity of the destructions is: the 1st, 3d and 5th, are moderate; the 2d and 6th are middling; the 4th is great. The world preceding the present was greatly destroyed. In short, there is a whole minute tariff of the medium, degree and extent of world-destructions. The 4th Dhyāna forms the limit of destruction, it being, together with the higher heavens, a reservoir for the reconstruction of the universe. The Kalpa of emptiness is a dark vacuum below the preserved heavens, existing during 20 intermediate Kalpas; after which a wind from the 10 quarters begins to blow; then a cloud gathers; rain contained by the wind as in a vessel, fills the vacuum up to the reservoir; then all beings are reproduced by the churning action of the wind; first the annihilated Dhyānas, then the lower regions, the "throne of intelligence" and the Boddhi-tree, near Buddha-Gaya (*gai*, to sing), and the lotus, whose number of blossoms is emblematic of that of the Buddhas (originally 5, afterwards 1,000) in the future Kalpas. Many of the beings preserved in the higher heavens are reborn on the new earth, with bodies shining like the sun, and live by meditation. After having tasted of the sweet new earth-sap, their bodies begin to ferment with lusts, to have need of the sun and moon (which only then shine forth), and they deteriorate in the ratio of their appetites. Their nutriments grow coarser, and excite sexual desires, which beget the necessities of birth and other evils. The greedy accumulate too much rice, which ceases to grow spontaneously; agriculture therefore becomes imperative. Then "mine and thine," or ownership, are contrived; followed by laziness, gluttony, dissipation, envy, avarice, theft, murder, war, &c. Therefore, *Mahā Sammata* (the great assented to) was chosen as the first king on earth; and castes followed. The duration of life sank with the deterioration of beings to 80,000 years; many are reborn as animals, and at last, hell yawns. After this, follows the Kalpa of stability. In it the life of men lasts only 10 years, then 80,000, and thus gradually and alternatively 20 times, in the ratio of sinfulness. In this the most majestic and perfect Buddhas are born, for the renewal of the Dhamma. A Kalpa with 5 Buddhas, is called *Bhadra* (prosperous, virtuous), and such is the present one, which is in its decline. Deterioration by sin is cured by wars, pestilence, hunger, scourges, which arouse the survivors to better conduct.—The world is governed by destiny. This differs from the Greek *μορφα*, the Latin *fatum*, and the *maniyat* of the Islam; nor is it a law of nature, or an eternal decree, or predestination. According to the Buddhists, living beings are by no means products of nature. Only because the entities have sinned from eternity or become material, matter exists; because they are from eternity in the process of purification, the innumerable worlds arise and vanish. The entities are the marrow, the universe is its lodging. In short,



the universe is a result of the morality of breathing beings, and destiny is the product of their merit and guilt. There is no indivisible absolute Brahma, as the germ of nature. The cardinal point of the rotations of the worlds lies in the lowest stations of the 4th Dhyāna, viz.: in the 2 heavens of the gods of great merits and of the unconscious, which form the line of demarcation between sin and sinlessness. Morality is the prime agent of that whirlwind which tosses the universe into being and not-being. The mode of its action is variously explained.—Beings migrate, because they are sinful, by having fallen through terrestrial nourishment into avarice, hatred, &c., in consequence of unatoned guilt in former lives. Buddhism makes no inquiry into the origin of individual entities. Sansāra (*san*, Lat. *simul*, *sri*, to go) or mundane life, is the fundamental evil, the ocean of existence with the 4 poisonous streams: birth, age, disease, and death, upon which we are tossed by the storm of passion; restless and without haven. Out of the Sansāra there is naught; on the one hand there is emptiness, and on the other Nirvāna, or beatific enfranchisement. In Sansāra there is no truth, no essence; all is deceit and fallacy. It is only constant in inconstancy; in it every form or determination breaks like a bubble. Birth leads to death, death to rebirth, youth to old age; beauty, health, wealth, vanish. All ages are beset by peculiar evils. Death is not the last of pains, for it leads to birth again. Sin degrades to a lower being or leads into hell. Even godliness does not exempt from rebirth or from relapse into a bad *Gati* (way) of rebirth.—With regard to ontology, and psychology, the philosophic schools of Buddhism are at variance, and especially concerning the notions of the soul, and of the Nirvāna. In some cases the soul of man may sink even below the 6 *Gatis* or ways of rebirth into the vegetable and mineral way; although this view is less supported by the more ancient texts, than by Brahminic or Thibetan legends. Klesa (*kliśa*, to suffer or inflict pain), or the original sin in a former existence, is the fountain of all evil. Its conquest is the last aim of all life and effort. He who breaks its fetters, “breaks through the eggshell” and escapes the alternation of births. The Klesa awakens evil desires, which are chains to existence; this clinging to life impels us to a renewal of existence, and to further wandering after death; the love of life begets new life. Both this motive and the so-called destiny by morality have their root in the Klesa: the former acting as impulse or gravitation into corporeality, the latter, as the germ, leading to the realization of the former. With the death of the body the soul is not freed from its desires, but wanders by that *Gati*, which it deserves. All good and bad deeds are balanced against each other like credit and debit in a commercial account, and determine individual destiny, not providentially but in consequence of the endless chain of causes and effects. Only

a Buddha or an Archoha (*archa*, to worship) or saint can overlook and unravel the thousandfold knotted threads of the moral chain. Buddha said once to Ananda: “If a well-doer comes to hell, the merit of his present life is not yet matured, but the evil of a former. To be rewarded before such maturity would be tantamount to being paid before the appointed term.”—Freedom is obtained only after the escape from the bonds of desires, and from the power of our past deeds. Then only do we see, with a “divine eye,” our numberless births, risings and fallings, which are all due to our actions. The succession of the existences of a determinate being, is also a succession of souls, which are united by the law of moral causality, each one being the product of the guilt or merit of all its predecessors. When an individual dies, the body is broken, the soul is extinguished, leaving merely its deeds with their consequences, as a germ of a new individual. According to the germinating power, determined by the Karman (morality of actions), the result is an animal, or a man, or a demon, or a god. Identity of souls is thus replaced by their continuity, in the solution of the moral problem. Each soul inherits the fruits of the Karman and the office of liberating and purifying its predecessor. I ought, therefore, not to act well merely on behalf of my own selfish weal, but for the benefit of a new “I,” which is to follow after me. The Buddhistic metempsychosis is, therefore, rather a metamorphosis of the soul. “A lamp is lighted from another; the lamps differ, the second only receiving the light from the first. So is it also in regard to souls.”—The final goal of Buddhistic salvation is the uprooting of sin by exhausting existence, by impeding its continuance; in short, by passing out of the Sansāra into the Nirvāna. The signification of the latter term is a prolific subject of discussion and speculation with the different philosophic schools and religious sects of Buddhistic Asia. Its interpreters prefer vague definitions, from fear of offending sectarians. It means the highest enfranchisement; to theists, the absorption of individual life in God; to atheists in naught. The Thibetans translate it by *Mya-ngan-los-hdah-ba*, the condition of one freed from pain; eternal salvation or freedom from transmigration. Its etyma are *nir*, not; *van*, to blow, and arrow; its orthography is *Nirvāna*; its collaterals are: *Nirvāna*, liberation; *nirvāpa*, putting out as a fire, &c. It is *Nibbāna* in Pali, *Niban* in Burmese, *Niruphan* in Siamese, *Ni-pan* in Chinese. Weighing all divergencies in its exegesis it may be safely designated as the definitive enfranchisement from existence without a rebirth, the cessation from all misery. It is the beyond of the Sansāra, its contradiction; with space, time, or force. In the 3d council it was declared to be ineffable and indescribable. It is the *summum malum*, its annihilation the *summum bonum*. The common definition is “total annihilation of pains and of the *Samsāra* or attributes of existence.” But

"bestifying dogma of naught" became with the laity a mere emancipation from suffering and cessation of existence. By dint of Dhyāna (divine meditation) and of ecstasy, the soul, forsaking its selfishness, may, even during bodily life, exalt itself momentarily to the Nirvāna; and for this reason this was also considered as one of the higher heavens, as the empyræum of the formless and colorless world. In progress of time, the Nirvāna was divided into 8 kinds. The simple Nirvāna, the Parinirvāna or complete Nirvāna, and the Mahāparinirvāna or great complete Nirvāna, answering to the 8 degrees of wisdom and of sanctity. In the modern mystic-panteistic schools, which contain a mixture of Givaism, the Nirvāna means the return into the abstract, nameless monad or original Buddha. From a higher point of view, both the Saṁsāra and Nirvāna are each a naught; the former being changeable naught by deception; the latter naught absolutely. The Saṁsāra exists only to ignorance; it is a mere illusion of the Māya. From the destruction of this ignorance, the Nirvāna results.—In the Kalpa of restoration the most perfect Buddhas appear to turn the wheel of faith, and inaugurate a new period of revelation and salvation. Innumerable Buddhas have already appeared. They are beings who have raised themselves with their own energy, by virtues and sacrifices of all sorts in thousands of births, to this highest pinnacle. All are born in central India, and their mother dies on the 7th day after giving them birth; their doctrine is one and the same; in short, their whole biography is a stereotyped copy of that of Sākyamuni. They differ merely in parentage, one being of Brahminic, another of Kshātriyaic, extraction; in age (which is determined by that of the period in which they reveal themselves), one living less than a hundred, another many thousands of years; in size, one being 6 feet, another 80,000 miles in stature, according to the character of the period. They are called Tathāgatas (*tathā*, thus; *gata*, known, and gone). The teaching of each evaporates with time, while sins grow. Then a Bodhisattva (intelligence of truth) is chosen among, and by the blessed on high, who is to become by a new birth on earth, a Buddha. His career has 8 stages of immeasurable length, viz.: 1. That of decision to become a Buddha; 2. That of prospect; and 3, that of nomination by the Tathāgata, whom he meets on earth. Only a monk possessed of the fruit of the 4 Dhyānas, and who has met with a Buddha during a preceding life, can thus be chosen. The exercises of the 6 Parāmitas (*Paras*: Lat., *præter*; *ita*—*itua*, a, um) of charity, kindness, patience, energy, meditation, and wisdom, in their highest degree, and during millions of existences, can alone fit the individual for this career and mission.—Few of the innumerable Buddhas, who are said to have been on earth many millions of Kalpas before Sākyamuni, are nominally recorded; but 24 of his immediate predecessors are mentioned by him, 23 of whom promised him that he should be-

come a Buddha; especially Dipaṅkara Buddha and 6 others. Of the 5 saviours of the present Bhadrā Kalpa 3 appeared before Sākyamuni, namely: Krakuchōda (*krakach*, saw; *uda*, end), Karakamuni (*karaka*, gold; *muni*, saint), and Kasyapa (*kāśya*, spirituous liquor; *pā*, to drink), while the 5th, Maitreya, (*mitra*, friend, charity) is yet to come.—Many legends concerning the predecessors of Sākyamuni are applied to him; and it is not absurd to suppose that he represented his doctrine as pre-Brahminic. All these Buddhas of the dimmest antiquity are dogmatic, mythological, and fantastic personages. Our historic Buddha is also not altogether free from legendary qualities. For, says a legend, when in unfathomable fore-ages, Brahmā saw a youth carrying his mother through a most terrible tempest, he instilled into his heart the wish to become a Buddha. This wish lasted during the revelation of 125,000 Buddhas, and his prospective stage was matured while 887,000 Buddhas were turning the wheel of faith. As a Bodhisattva he offered flowers to Dipaṅkara, on a spot near the present Jellalabad.—The *Jātakas* (*jana*, to be born) and *Jātakamālas* (*māla*, wreath of flowers) on the migrations of Sākya, are a favorite subject of oriental monastic poetry, as well as of the pictorial and plastic arts, and a source of many pious frauds. *Daunglun* (the wise and the fool), a Thibetan collection of such legends, and kindred works, are of recent date. Sākyamuni, although passing through 550 transformations (as king, hermit, priest, courtier, Brahmin, Indra, merchant, and as animals of many kinds), in a Cingalese legend, preserved his Bodhisattvic character in the greatest purity. His sufferings on behalf of the salvation of the world, were extraordinary in their number as well as in their most horrible nature. These *Jātakas* took place mostly at Benares and on the Indus, about the time of Christ's birth, and the centuries immediately succeeding. A spot is shown even now at Attock, where, as a prince, he offered his body to be devoured by a starving tigress and her young; and a few miles thence another, where he used his own skin as a tablet, splinters of his bones, as styles, and his blood as ink, to record a lost passage of the Dharma. In the legend of the royal prince Vesantara, his penultimate life as a Bodhisattva is ushered in by his *Maha jātakā*, or great birth. This legend is popular among all Buddhistic nations, from the Calmucks to Ceylon and Siam; in it he makes the most extraordinary sacrifices of his person and of his wife and children. Vesantara went to the heaven of the joyful; thence, in the shape of a white elephant, into the body of Maha Māya to be born as Sākyamuni. His royal father became his other father, *Suddhodana*. The law which he revealed is to last for 5,000 years, and disappear with the world before the advent of Maitreya, whom he had already crowned in heaven, and who is to bring a period of peace and holiness upon earth. II. The *VINAYA* (*vā*, before; *nī*, to guide) is the discipline of the priests; one of its parts, called

*sila* (to learn), regards the morality of laymen. The *Sramanas* (sense-tamers) are bound to observe 260 ordinances. Of these 10 are essential, viz.: not to kill, not to steal, to be chaste, not to lie, not to get drunk, not to eat in the afternoon, not to sing or dance, &c., to abstain from ornamental dresses, not to use a large bed, not to receive precious metals; 5 concern the respect to be paid to Buddha, to the law, and to the priesthood. Good conduct, good health, and little learning suffice for admission to monkhood; even in very early youth. The novice is enjoined to eat only the leavings of laymen's meals, to wear a soiled garment of rags, to live near the roots of trees, to use the urine of cows as medicine, not to boast of superhuman faculties. Ordination is performed with many ceremonies, on great festival days. The vows do not bind for the whole of life. The clerical dress, which consists of an under-jacket, a gown reaching to the knees, and fastened by a girdle, and a cloak over the left shoulder, all yellow, must be kept on, even at night, and its loss entails that of the priestly character. Different climates, sects, and dignities have introduced some modifications; thus, Lamaists wear crimson or violet garments. New and costly materials, cut in pieces, are sometimes sewed together and sprinkled with dust, to comply with the letter of the law. Except apostles and very holy men, all others shave their heads and beards at the new and full moon. The nails and teeth are kept clean. The indispensable implements of a Bhikshu or mendicant are: a great, round, narrow-mouthed bowl, without a handle, for receiving alms; a sort of sieve or ewer to filter water; a staff or umbrella; a rosary of 108 beads; a razor, and needles. Beside these, he has no property, and lives altogether on alms, which he collects without importuning the givers.—Solitude and wandering about, begging without a fixed residence, were soon exchanged for residence in convents, with cells for single monks. Celibacy is strictly enjoined. The homes of luxury, of nobles, of widows, and infidels, must be avoided by the begging monk. The receiving of alms or of presents is regarded as a favor to the giver, who is more benefited than the receiver. It is a sin to receive more than is needful for one meal, or to spill a part of the gift, or to separate liquid from solid victuals. Animal food is forbidden, and even vegetables while retaining the power of germinating. Although poverty be a law for single monks, the monasteries can receive and possess great wealth, lands, serfs, &c., for the maintenance of temples and stupas. Obedience and subordination are less required than fraternal and peaceful conduct. Sins are confessed twice a month, to an assembly of at least 4 priests. The penalties are not cruel, and consist in repentance, reprimand, suspension, or expulsion, according to the character of the sins. Nuns (*Bhikshunis*) have to observe the same rules as monks, and to be respectful to them; some are allowed to

dwell with their parents or friends. They also shave their heads, dress in white, and go about begging, sometimes for the monastery. The abbots, or heads of monasteries, are chosen by a meeting of the monks; but in Siam and Burmah they are appointed by the king, and among the Lamas of Thibet they are elected by the college. The number of monks in a monastery is from 4 to many thousands, especially in northern countries; for instance, in the collegiate monastery of the Chutucts, in Mongolia, there are 80,000. On the whole, the hierarchy is more democratic than monarchic. We have seen that the uninterrupted series of 28 patriarchs, who are believed to have followed Buddha Sakyamuni, has no historic foundation. In Thibet, however, there is a minutely regulated hierarchy and monarchic government under the Dalai-Lama, who is always reborn after death in another person, and whose administration is carried on, during his minority, by regents.—In the beginning Buddhism was very simple, without a complicated system of saints; but in progress of time we find: teachers of theology; *Aryas* (venerables), who know the 4 truths; men of the 4 paths or fruits those who have attained the stream which floats them into the Nirvana; others who will return yet once to life; others who will not return; and *Archats*, or the worshipful, who are perfectly pure, infallible, endowed with miraculous powers, and see the Nirvana; still higher saints, of 3 sorts, according to the 3 passages or vehicles. The 3 sorts are: those having life on account of their being pupils of Sakyamuni; Pratyeka Buddhas, or self-saviours, a million times higher than Archats, comprehending all causalities; and Bodhisattvas, a sort of embryonic Buddhas. The 3 passages or vehicles are represented as being drawn, the little by antelopes, the middle by goats, the great by oxen. Buddha himself is represented to have been thrice as great in body as ordinary men, of the most majestic beauty of appearance, with 84 great and 80 lesser characters of physical perfection, with a protuberance on the head, with bluish-black locks flowing like a periwig, a tuft of hair between the brows, &c. His footsole are marked with various emblems, such as a wheel with many spokes, an umbrella, an elephant's trunk, a lotus, mount Meru, the sun, moon, tiger, mystic crosses. The atmosphere about him is aromatic, his head is surrounded by a halo of light.—Buddhism favored the laity by admitting them to salvation, and binding them to the priests. *Upasakas* and *Upasakis* (*up* before; *asa*, to be) are male and female religious servants, a sort of half monks and half nuns bound to observe the first 5 of the above precepts, with the following 5: not to swear, curse, not to talk nonsense, not to be conceited or greedy of pleasure, not to be malignant, to eschew superstition, heresy, and scepticism. In short, the whole morality is more one of endurance, of patience, of submission, and abstinence, than of action, of energy, of enterpri-

A general love of all beings is its nucleus; each animal being our neighbor or possible relative. To love even our enemies, to offer our lives for animals, to abstain even from defensive warfare, to gain the greatest of victories by conquering oneself, to avoid all vices, to practise all virtues of humility and mildness, to be obedient to superiors, to cherish and respect parents, old age, learning, virtuous and holy men, to provide food, shelter, and comfort for men and animals, to plant trees on the roads, dig wells, &c.—such are the moral duties of Buddhists. No religion is despised by them, religious wars waged against dissenters have never been heard of among them; the only contest on record being that between the Thibetan Yellow and Red caps, in which the latter were driven out into the high valleys of the Himalaya (Bhotan, Nepal, Ladakh, &c.) “Honor your own faith, and do not slander that of others,” is a Buddhist maxim. Kublai-Khan, who became a convert in 1259, allowed priests of all creeds to “swarm at his court,” who were eager to convert him to their own faith. The persecutions of Christians in Japan, China, Siam, &c., are occasioned by other than religious causes, being commonly reprisals against their intermeddling habits. National barriers have been most effectually levelled to the ground by Buddhism. Polygamy is not countenanced, but merely tolerated where it had existed before Buddhism came in. Monogamy is the rule in Ceylon, Siam, Burmah, somewhat less so in Thibet, Mongolia, and among the Calmucks. What we call illegitimate children are not disowned or abandoned, but taken care of, although they have no equal right of inheritance with the strictly legitimate. Woman, in general, is better treated than by any other oriental religion. In the cold, high regions of Thibet, and in the Himalayan valleys, polyandry is not rare, several (sometimes as many as 10) men, mostly brothers, having but one wife.—Worship, in our sense of the word, arose slowly and late in Buddhism. Almsgiving, confession, preaching, explaining the reasons for the inequality of fortune, and other relations between the clergy and laity, produced, at last, the use of prayers, of adoration, and of sacrifices. The memory of Sakyamuni, his pretended image, his relics (afterward those of others), became objects of idolatry. Buddha is said to have made a portrait of himself, which became the stereotype model of an infinity of images, statues, and the like. The ancient Buddhist paintings in fresco, as found in grottoes, are highly creditable to the taste and skill of the painters, who were mostly monks. Three sorts of relics of Buddha and of saints are distinguished, viz., bodily *dhatus* (elements) or *sariras* (*śrī*, to injure), such as teeth, hairs, nails, pieces of bones; things once possessed by the saint; and objects with which he came into contact. The most renowned of relics is Buddha's left eye-tooth, the present palladium of Ceylon, whose history is quite romantic and miraculous. It is a

piece of bent ivory, about 2 inches long, kept in a splendid chapel and surrounded by many jewels. Buddha's skull, eyeballs, shoulder-blade, &c., his manuscript of the Dhamma, his gowns, alms-pot, &c., his shadow, heaven-ladder, his animal bodies, as bird, elephant, &c., the Bodhi-tree at Gaya, and many other relics, are shown in various places. Relics are kept in *stupas* or *topes* of peculiar construction; the shape of a water-bubble, and one or several umbrellas being characteristic and symbolic features of these monuments, among which the celebrated porcelain pagoda of the convent of celestial beatitude at Nanking is the principal. Most have cupolas; but some, like the *Suvurghans* of the Mongols, are pyramids, or only truncated pyramids. Their height is from a few inches to 800 feet and more. Most of them contain a small cavity, in which the relics are kept; but some are solid. A trinity, called *Triratna* (3 jewels), was at last developed in the less than unitarian Buddhism, probably the prototype of the Brahminic *Trimurti*, but certainly a personification of the ancient formula, “Buddha, Dhamma (law), and Sangha (collection).” We know the 2 former. Sangha is the collection or congregation of saints, or what we call the church or the council; but at last it came to mean simply the priesthood. Since the priesthood was the representative of Buddha, and the expounder of the Dhamma, it became itself the whole trinity, and even God; though in pure Buddhism no God is mentioned. The original formula of a prayer: “I take refuge with Buddha, I take refuge with Dhamma, I take refuge with Sangha,” is repeated mechanically *ad infinitum* by the aid of the beads; the movement of the lips being sufficient to render it efficacious. At last praying machines were constructed, consisting of a sort of hollow barrel, which turns on an axis, and in which the prayer, written on a great many little scrolls, is turned about like coffee in a roaster. Fa-hian, the Chinese pilgrim, describes (A. D. 400) some which he saw. Some are colossal, and moved by wind or water, or by special turners, or merely kicked into motion by passers by. Magic formulas of exorcism, storm-making, raising from death, &c., remnants of ancient Shamanism, have been engrafted upon Buddhism amongst the Mongols and Calmucks. Sermons have also become an integral part of worship, as also processions around temples or stupas, with relics; sacrifices of fruit, flowers, incense, eatables (not bloody); confession of laymen, consecration of sacred water, sacred baths or baptisms (in Mongolia), fastings, psalm-singing, chorals, benedictions, litanies. The Lamas are dressed in pontificals, like those of the Catholic bishops. The temples are square, with a nave and lateral halls, separated from it by columns. Opposite the entrance is the sanctuary with the altar, and images of saints. In some there is a dagoba under a cupola. Paintings, banners, garlands, tapestries, allegoric representations adorn the church. There are 8 altar imple-

ments: an umbrella, a horn, crosses entwined in a knot of 24 angles, a lotus-flower, a gold-fish, a ewer, a wheel, an allegory of 5 senses; all symbolic of Buddha, and made of pasteboard or of metal, varnished, gilt, and painted. On the altar are sacrificial shells, sacred vessels, a metallic mirror to reflect Buddha's image, a round plate with 5 protuberances, representing the Meru and the 4 Dvīpas or quarters of the world, and a chalice. Fumigations, illuminations, music, bell-ringing, and many other things similar to those used in the west, attend the rites. Beside the festivals at the new and full moon, and some others in different countries, there are 8 great annual festivals. One is called the lamp-festival at the close of the *Varsha*, or rainy season, our autumn; there is another at the beginning of spring; one on the day of the conception or birth of Sākyamuni, whose time varies in different countries. There is also, in some parts, a 4th festival, when the images of Buddha and of the saints are carried about on wagons; and in the north a 5th, is that of the consecration of water, rivers, lakes. The Lamas also say masses for the repose of souls. Synods are held annually and quinquennially; the latter, in olden times, on the sacred plain at the confluence of the Ganges and Jumna, called the great alms-field. Family-worship takes place at different stages of life, such as birth, naming of the child, hair-cutting at puberty, marriage (though this is merely a civic and not a religious act), death, funerals; at all of which the priest is present, although not necessarily as in Europe. The priest acts also as a physician, and in the north as a sorcerer, magician, augur.—*Samādhi* (*sam*, together; *dha*, to have hold), or meditation, for the sake of arriving at the extinction of the selfhood in the manner described above, is the acme of spiritual life. It consists of 4 degrees: 1, consideration of one thing as distinct from others, with satisfaction at the discernment of multifarious things; this frees one from the conditions of sin; 2, suppression of that discerning judgment, reduction of the many things to one; with pleasure thereof; 3, indifference in the discernment by judgment; memory and consciousness yet active, with a dim feeling of bodily well-being; 4, complete indifference, purification from all feeling of joy or pain. Nothing can resist contemplation, and the Bodhisattvas thereby reach the 28th heaven. There are theories concerning 108 Samādhis. Over the 28th heaven there is yet Nirodha (*ni*, before; *rodha*, to oppose), or the obstacle, before the Nirvāna can be attained. Whether this obstacle necessarily ends life, is not yet ascertained. The fruit of Samādhi is *Djāna*, science or omniscient omnipotence, containing the *Moksha* or final liberation. III. The *ABHIDHARMA* (*abhi*, over, upon, and *Dharma*) constitutes Buddhist metaphysics, and is derived indirectly from Sākyamuni. The southern Buddhists say: "Sūtras are for men, Vinaya for priests, Abhidharma

for gods." There are but 2 sources of knowledge; sensual perception and logical deduction. There are 2 principal philosophic schools: 1, that of the *Vaiśhāṣikās*, or dilemmists, who maintain the necessity of immediate contact with the object to be known; 2, that of the *Sautrāntikās*, who insist on perception and on deduction therefrom. Some among the former reject the existence of the world. Buddhist logic is exceedingly contradictory. Each determination ends in naught. To be is said also not to be. A common formula of arguing is this: "A thing is and is not, and it neither is nor is not." The method is purely dogmatic and dialectic, proceeding with stereotyped categories and formulas. Philosophy, cosmology, and theology, are an overturning wheel without any locomotion. In general, the wheel and water-bubble are the constant emblems and symbols of Buddhist reasoning, which is most developed in the theory of the "great passage." Matter is merely a product of morality. Some schools count 5 elements, with as many qualities and senses; some have 6, viz.: earth, hard, nose; water, wet, tongue; fire, hot, eye; air, movable, skin; ether, audible, ear. To these is added the *Manas*, or common sensorium, whose objects are the *Dharma* (law, being, nature matter), and the *Vijñāna* (science, conscience). Some systems admit a specific soul or self (*Jīva Atman, Upādhi*); others deny it. It is needless to enter into further details, and we conclude with a list of the following chain of 12 causes (*Nidhānas*; *nī*, in, on; *dā* to possess): 1, age and death; caused by 2, birth; caused by 3, existence; this by 4, attachment to things; this by 5, desire; arising from 6, sensation; which presupposes 7, contact; this 8, senses; which perceive 9, forms and names or distinction; caused by 10, conception of ideas or consciousness; which comes from 11, stirring and action: this being, at last, the result of 12, *Avidya* (*non* and *vidya*), or ignorance. All these illusions must be annihilated before we can sink into the emptiness of the Nirvāna.

BUDDING, a method of propagating trees and shrubs. It is now well understood that the seeds of cultivated fruits, when planted, seldom produce trees bearing fruit true to their kind. Young trees, grown from seeds, are called stocks. They are removed from nursery beds when in a thrifty state, with well-ripened wood, set in regular nursery rows in good ground during early spring, and in summer worked with choice buds from fruit trees. Large trees are frequently remodelled by the inoculation of some of the thrifty young shoots with buds from more desirable varieties of fruit than their natural product. A tree is composite in its character. Each bud may be made a separate individual; it is a point of vitality, and sends out its delicate rootlets of woody fibre, burying them in the rich soil of the branch on which it is borne, at the first awakening of the dormant tree in early spring; just as a seed under

the influence of warmth and moisture, when placed in the soil, develops the little germ which sends its roots to feed in the mould by which it is surrounded. When a bud is carefully removed from a tree, it bears all the characteristics of that tree, and when properly set in a thrifty young stock will unite with it, and produce a tree similar to the one from which it was removed. The results produced by budding are the same as those brought about by grafting; but the former has many advantages, as follows: 1. Stocks may be budded at an earlier age than they can be successfully grafted. 2. Stocks may be budded the same season they are transplanted, while they should not be grafted until the ensuing season. 3. Budding is a more rapid operation than grafting; a slow workman being able to set 2 in a minute, and frequently 1,500 to 2,000 are set in a day, where a lad is allowed to tie on the bass matting to protect the bud. The work is also done at a season when there is not so much hurry as in the spring, when grafting is performed. 4. If a tree be budded during summer, and the bud dies, the operation may be repeated the same season, or the stock grafted the ensuing spring; whereas, if it be grafted first, it may be entirely lost. 5. Very choice trees may be rapidly propagated by budding, one bud being sufficient to reproduce the variety, while in grafting several buds are used at once.—For budding, a sharp, thin-bladed, round-pointed knife, with a handle terminating in a thin wedge-like piece of ivory or bone, which is useful in raising the bark of the stock, good stocks, good buds, and bass matting for tying, are required. The process of budding, though simple, requires a dexterous hand. The buds are taken from shoots of the present year's growth, when they have become perfected; this may be known by the formation of the terminal bud. Should the shoots be backward in growth, they may be more rapidly perfected by pinching off the upper end, checking their growth, and ripening the parts. The buds to be removed are developed in the axils of the leaves, or that point where the leaf joins the stem. The buds should be well formed before being removed, or they will be of no value. When of proper age, the young shoot from which the buds are to be taken is cut away with a sharp knife, the leaves are removed from it, while their foot-stalks are left attached to the buds as handles. The removed shoot is then called a "stick of buds." They may be wrapped in damp cloths and laid in a cool place for several days, if necessary; or they may be packed in moist sawdust to exclude the air, and thus sent a long distance with perfect safety. When the operator is ready, he selects a smooth place on the stock, making an incision across it through the bark, and another at right angles to and below it, so as to form a T; the bark is raised on each side of the cut by the ivory handle of the budder's knife, and the stock is ready. Taking the stick of buds in his left hand, the operator inserts his knife above the

bud, bringing it out below, so as to cut away the bud, a portion of bark, and a part of the wood. Some budders are particular to remove this bit of wood, so as to expose the root of the bud to the surface of the wood of the tree, while others are not particular, so long as they secure a wide surface of bark around the bud to attach to the wood of the stock. It is a very nice operation to remove the wood successfully. Mr. P. Barry says, in his "Fruit Garden:" "When it happens that the knife passes exactly between the bark and wood, the bud cannot fail to be good; but this rarely happens; more or less wood is attached, and the removal of this is the nice point. Where the buds are flat, the difficulty is less than when they have large, prominent shoulders, as the plum and pear have in many cases. When all the wood is taken out of these, a cavity remains which does not come in contact with the wood on which the bud is placed, and therefore, although the bark unites well, the bud will not grow. Sometimes such as these are separated by making an incision through the bark, lifting the edge of the bark attached to the bud with the knife, and pushing it off with the fingers. A safer way still is to cut around the bud and draw a strong silk thread between the bark and the wood, thus removing the bud in perfection." Mr. J. J. Thomas says, in his "Fruit Culturist:" "The English practice of taking out the small portion of wood cut from the shoot, has been found, in the climate of this country, not only useless, but really detrimental. Indeed, it often happens that buds of the cherry and other trees of rather spongy growth and slow adhesion, succeed much better when a thick portion of wood is taken off than otherwise; the wood in such cases assisting in the retention of moisture until cemented to the stock." Having prepared the bud, insert it quickly in the incision on the stock, and commencing at the bottom wrap the bud and stock with strips of bass matting, merely leaving the vital point of the bud exposed, and making the whole impervious to air and water. The bud will soon swell, when the tie should be loosened, and finally removed. This will happen in from 10 to 20 days. Should any length of time elapse from the removal of the bud to its insertion, it should be held in the mouth to keep it moist.—The time for budding is usually from July 15 to Sept. 15. The only rule that can be given is, to secure the perfect development of the bud, and to ascertain that the bark of the stock separates freely from the wood. This will occur earlier or later, according to the kind of tree, location, and season. The inserted bud will remain in the stock in a dormant condition until the ensuing spring, when the top of the stock is removed a few inches above the bud; thus the latter receives the whole sap of the stock, and when a shoot is produced it is stayed by being tied loosely to the stock left above the insertion. Later in the growth of the tree the stock is cut down to the butt of the new shoot, which rapidly heals the wound, and the young tree becomes

a true representative of the variety from which the bud was originally derived. Budding is sometimes performed in spring, sometimes in June, but these are not desirable periods.—Anchor budding is a new method, which has some advantage over the old process. Instead of making a cross incision so as to form a T, cuts are made from the upper end of the vertical incision at a slight angle, so that the whole is shaped like an anchor  $\wedge$ . The bark may be more readily raised from the stock than in the old method. Mr. C. G. Paige, of Washington, D. C., recommends this method as the best.

**BUDE (BUDÆUS), GUILLAUME**, one of the most learned Frenchmen of the 16th century, born at Paris in 1467, died Aug. 24, 1540. He revived in France the study of the Greek language, which he had learned under Johannes Lascaris; was appointed by Francis I. royal librarian and master of requests; and it was chiefly by his counsels that the college of France was founded.

**BUDE LIGHT**, the name given to the method of increasing the light of coal gas, or of argand burners of lamps, by introducing oxygen gas into the interior of the hollow flame. The process was contrived by Mr. Goldsworthy Gurney, of Cornwall, England, and called Bude light from the name of his residence. The materials consumed to produce light burn to waste in the ordinary hollow flame; only the outer portion of this is exposed to the oxygen of the atmosphere, and the gases in the interior are carried off only partially consumed. By directing a current of oxygen gas upward through the internal cavity of the flame, all the gases meet the full supply of this element, and thorough combinations take place, with greatly increased vividness of light. This principle has been introduced into the English house of commons, with the most satisfactory results as regards economy and efficiency of the light produced, and its agreeable effects. The gas furnished to the city of London is of such inferior quality, that it is found well to purify it and improve its illuminating property by passing it through naphtha. Oxygen is produced by heating black oxide of manganese in retorts set in a furnace in a vault of the building; this gas is conveyed through pipes to a gasometer, from which extend other pipes, with a branch leading into the centre of each burner. The house of commons was formerly illuminated with 240 wax candles, placed in different parts of the apartment—an exceedingly ill contrived and expensive arrangement. By the adoption of the Bude light the expense is reduced  $\frac{1}{3}$ , while the light is far more brilliant and agreeable to the eye, more nearly resembling daylight than any other artificial light. Even with the extra expense of the naphtha process, which is probably only necessary in the use of the London gas, the application of the oxygen is not attended with any increased expense, when the additional amount of light obtained without extra consumption of gas is correctly calculated. It is a process, how-

ever, that can only be advantageously conducted upon a large scale. According to the quantity of oxygen supplied, the color of the light may be made to vary from the most perfect white to the red hue.

**BUDGELL, EUSTACE**, an English writer and friend of Addison, born in 1685, at St. Thomas, near Exeter, died in 1736. He assisted Steele in the composition of the "Tatler," and Addison in the "Spectator," where his contributions are distinguished by the signature X. In 1717, Addison obtained for him the place of comptroller general of the revenue in Ireland. He lampooned the Irish viceroy, and was removed from office, and in 1720 he lost all that remained of his fortune in the South sea scheme. Soon after this a legacy of £2,000 was left him in the will of his friend, Dr. Tindal; but Budgell was accused of having interpolated this passage into the will, and the legacy was annulled. He finally ended his life by leaping from a boat into the Thames.

**BUDGET (Fr. *bougette*, a bag)**, an official statement respecting the annual income and expenditure of a nation. In the parliamentary parlance of England the term refers to the financial statement of the chancellor of the exchequer. As a matter of mere amount, the greatest budget ever proposed was that providing for the British expenditure during the late Russian war, at the rate of \$425,000,000 per annum.

**BUDGETT, SAMUEL**, an English merchant, as eminent for piety as for business talent, born at Wrington, July 27, 1794, died in Bristol, April 29, 1851. The son of a trader, he received little education at school, but began early to receive in his father's store lessons for his future practice. At 7 years of age he removed with his parents to Kingswood, and 2 years after to Coleford, where he began to display his mercantile predilections, and, with a habit of mind which always remained to him of deducing general principles from particular facts, inferred from an incident that self-interest is the mainspring of human actions, and determined in all his future dealings to be able to present a case which should convince men that their interest lay in purchasing from him. He began his apprenticeship in a commercial house in 1809, and at the age of 22 years went into partnership with his elder brother at Kingswood Hill. The energy of the new merchants, and the fact that their business was conducted on the system of cash payments, gave them rapid and sure success, and they soon had several establishments in Bristol, dependent upon the central one at Kingswood Hill, and were among the most extensive general merchants in the western part of England. In 1835 the elder brother retired from the firm, and the business was prosperously continued by Samuel Budgett till his death. He was an earnest member of the Wesleyan church, and was distinguished for his unvarying religious character, and for his admirable and Christian management of the

numerous men in his employ. Though as a master he required zeal and industry, and though an idle hand was sure of immediate dismissal, yet he was familiar in intercourse with his men, interested himself in their moral welfare, distributed regular rewards for punctual attendance, invited them all to supper at appointed times, and gave them an annual business fête with dinner, tea, and athletic and mirthful games. The habit of assembling all hands for daily prayer existed in his establishment from the beginning.

BUDNÆUS, or BUDNY SMON, a Polish divine, died in 1584, the founder of an early Protestant sect, which denied the divinity of Christ, and which disseminated its theories in Lithuania, Russia, Poland, and various other northern countries. His followers were called after him the Budnæans, but subsequently he and they coincided with the Socinians. His Polish translation of the Bible was published in 1572.

BUDOS-HEGY, a mountain in the E. part of Transylvania, belonging to the Carpathian range. It rises in the form of a steep, isolated cone to the height of 7,340 feet. On all sides of its base lie valleys, and for some distance up it is clad with dense forests. It has numerous caverns, which exhale sulphureous vapors.

BUDUN, 3 deities of Ceylon, who are believed to have begun as insects, and to have arrived at divinity through many transmigrations.

BUDWEIS, or BUDWITZ, a fortified town of Bohemia, on the Moldau; pop. 8,780. It contains a cathedral, a handsome council-house, several institutions of learning, flourishing manufactories of woollens, muslins, damasks, &c. The railway which connects the town with Linz was the first one built in Germany.

BUEL, JESSE, an American agriculturist, born at Coventry, Conn., Jan. 4, 1778, died Oct. 6, 1839. He learned the trade of a printer, and established the "Albany Argus," a journal which has had a powerful influence upon the politics of New York. Mr. Buel closed his connection with it, however, in 1820, and retiring to a farm in the neighborhood of Albany, upon the verge of that elevated and sandy plain which stretches nearly 20 miles to Schenectady, devoted himself to agriculture. The land which he had chosen for his residence, as well as the tract of a similar character surrounding it, had been found almost worthless under the system of cultivation hitherto pursued; but by fertilizing substances appropriate to the soil, and by deeper and more perfect tillage, he not only made it one of the best farms of the state, but gave an example of great value to others. He was frequently a member of the state legislature, and at one time had a seat on the bench of the county court, from which he derived the title of judge, by which he was generally known. In 1834 he commenced the publication of the "Albany Cultivator," which he edited for 6 years, diffusing in that time a vast mass of important information upon agriculture in all its

branches, and the mechanical arts accessory to it. He wrote also the "Farmers' Instructor," and the "Farmers' Companion." In addition to these publications, he delivered an immense number of addresses upon one or another branch of his favorite subject in almost all parts of the United States.

BUEN AYRE (*Bonaire*), a small, irregularly shaped island in the Dutch West Indies, used as a penal depot; pop. about 2,000,  $\frac{1}{4}$  slaves. It lies N. E. of Curaçoa, about 80 miles distant. It is a highland, sloping to the S. W., on which side there is a very good roadstead. The principal trade of the island is in salt, of which about 65,000 to 70,000 bbls. are annually exported. Cochineal is also exported.

BUEN RETIRO, formerly one of the 2 great palaces of Madrid, built on an elevated ground at the extremity of the city. The first structure was erected by Philip IV. under the guidance of his minister Olivarez, but large additions were subsequently made, with more regard to splendor than congruity. During the invasion of Spain by the French, in 1808, the Buen Retiro was selected by them as a commanding position from which to terrorize Madrid, and the result was its ruin.

BUENA VISTA, a hamlet in Mexico, 7 miles S. from Saltillo, in the state of Coahuila, famous for the battle fought near it, Feb. 22 and 23, 1847, between the American army under Gen. Taylor, and the Mexican forces under Santa Anna. Gen. Taylor had defeated the Mexicans at Palo Alto and at Resaca de la Palma, had forced the surrender of Matamoras, and stormed the defenses of Monterey. He had occupied Saltillo, but was now acting on the defensive, and on Feb. 20 was encamped at Agua Nueva, 18 miles S. from Saltillo, when he learned that Santa Anna, at the head of 20,000 men, was in front of him, 20 miles distant. By 2 routes it was possible for the Mexican general to gain the rear of the Americans, and intercept their supplies and communications. Gen. Taylor, therefore, on the 21st reluctantly fell back to the strong position of Buena Vista, a section of the valley which extends from Saltillo to Encantada, and which ranges from  $2\frac{1}{2}$  to 4 miles in width. Rugged mountains more than 1,000 ft. in height, and inaccessible to any but light troops, enclose it on either side. The valley is crossed by a series of deep ravines cut by torrents flowing from the mountains in the rainy season, and is traversed lengthwise by a road which winds along the line of drainage and over the projecting points of the ridges. It becomes a defile  $1\frac{1}{2}$  mile S. from Buena Vista at Angostura, immediately S. E. of which is a broad plateau set amid a system of narrow and difficult gullies. On and around this plateau was fought the battle of Buena Vista. The American force was less than 5,000 men, while the Mexican army was probably 4 times that number; but the features of the ground were such as nearly to paralyze the artillery and cavalry of the latter, and to prevent its infantry from deriving all the advan-



tage of its numerical superiority. Gen. Taylor returned a short answer to a summons to surrender, his line of battle having been already formed. A strong battery was posted on the road at Angostura, supported by 3 regiments on the crests of the nearest ridges. One regiment, with 2 guns, was thrown westward across the streamlet, to prevent any flanking movement of the enemy in that quarter. Two regiments of skirmishers occupied the extreme left, near the base of the eastern mountains. One regiment with 3 guns was advanced upon the plateau; and in the rear of the plateau the remaining force, consisting of 2 regiments, 2 squadrons of dragoons, and 4 guns, was kept in reserve. The battle began by a shell from a Mexican howitzer, and a rapid attack by the light troops of Ampudia upon the American skirmishers on the left, with a view of gaining the eastern heights. This was the only engagement during the afternoon; and at night Ampudia had succeeded in posting himself upon the summit of the ridge, while the American regiments were withdrawn to the plain. Meantime Gen. Minon, with a strong brigade of cavalry, having passed to the rear, Gen. Taylor regarded Saltillo as endangered, and repaired to that place during the night to complete his arrangements for its defence. The orders of Minon, however, were only to fall upon the Americans in their retreat, which Santa Anna was confident of forcing the next day. At dawn of day the battle recommenced, by an attempt of Ampudia to push the advantage which he had already gained. Both the American and Mexican detachments on the left had been reinforced; and after a brief interchange of musketry the Mexican skirmishers moved across the side of the mountain to gain the American left and rear, but were considerably harassed by a few shells thrown from a great distance from an advanced American position on the plateau. Santa Anna soon after organized a general attack in 3 powerful columns, intending for the forces of Ampudia to sweep down from the mountain at the same time. Pacheco, at the head of one column, ascended the plateau against 2 regiments of volunteers, who, galled at the same time by a flank fire from a heavy battery, after a stout resistance broke and fled. The whole fire of Pacheco's column and the Mexican battery was then concentrated upon an American battery of 8 guns, which had to be withdrawn with the loss of 1 gun after every man and horse at that piece had been killed or disabled, and when the other pieces were in not much better condition. Pacheco's masses now effected a junction with Lombardini's corps, which had advanced at the base of the eastern mountains, and with Ampudia's light division, which had pressed down from the slope, and their combined strength completely turned the American position, and put the whole American force on the left to flight. Meantime Mora y Villamil had led the third column of attack against Angostura, but the American battery opened upon it with such ter-

rific rapidity and effect, that the whole mass was immediately thrown into confusion and fled in a rout. Pacheco attempted in vain to drive the small American force completely from the plateau, being successfully resisted by a force of volunteer infantry, a squadron of dragoons, and 6 pieces of the regular artillery. The contest at this point formed no small part of the battle. Obligated to desist from their attempt to come down the plateau, the Mexicans under the protection of a powerful battery began to sweep around the base of the mountain to the American rear. In this posture of the battle Gen. Taylor arrived on the field from Saltillo, the chief command having been held in his absence by Gen. Wool. On the left, 4 American regiments were in full retreat, and the whole Mexican force in that quarter was advancing. Gen. Taylor immediately took up his position on the plateau, and advanced 2 regiments of infantry, well-supported by artillery and dragoons, directly in face of the Mexicans. Without regarding the overwhelming odds against them, the companies of gallant riflemen advanced, firing with great effect into the Mexican masses. They passed with a shout the last ravine intervening between them and the enemy, reappeared in an instant close in front of the hostile lines, and poured in their shot with additional rapidity till the enemy rolled back in confusion upon the supporting forces. Meantime the Mexican cavalry, persisting in its attempt to gain the American rear, had skirted the mountains even to the vicinity of Buena Vista. It was checked by the American dragoons, but the latter being called away to operate on the plateau, it hastily returned and attacked 2 unsupported American regiments, and in the furious mêlée which succeeded, Col. Yell was killed. The enemy escaped in season to avoid the dragoons, which had a second time appeared. At the same time a new attack made upon the American front by a fresh brigade of Mexican cavalry was repulsed. Gen. Taylor now ordered a combined attack upon the enemy's right flank near the eastern side of the valley, which was immediately carried into effect. The cannonade and musketry were directed with so much skill and vigor that the routed masses of the enemy were driven back upon the mountain. The route to the Mexican rear was in danger of being intercepted, and the destruction of the whole Mexican body in this quarter, of more than 5,000 men, seemed impending, when a white flag was borne from Gen. Taylor's position, and orders were given to stop firing. Three Mexican officers having approached the American lines for the apparent purpose of conference, Gen. Taylor sent an American officer to communicate with Santa Anna. Yet the only result of this manoeuvre was, that it enabled the endangered Mexicans on the left to make good their escape to the south of the plateau. The conference proved delusive, and the Mexican forces now prepared to make a final struggle for the victory in a single col-

man of attack, led by Gen. Perez. The whole Mexican strength, full 12,000 men, advanced up the crest of the plateau in a blaze of musketry. They came on, unchecked by the fearful discharges of artillery which swept through them, driving the volunteer regiments in confusion and disorganization; and under their storm of shot, Clay, McKee, Hardin, and other American officers fell mortally wounded. The artillery fell back as their pieces recoiled, keeping up their fire upon the advancing Mexicans, and striving to hold them in check until succor should arrive from the left and rear. In this terrible and unequal contest some of the American pieces had been already captured, when the timely arrival of the other batteries saved the day. It was by the united action of all the American artillery in the field that the Mexican advance was at length stayed after the hottest part of the battle. Yet the Americans made no advance in turn, and when night fell they held only a corner of the plateau, almost the whole of which they had possessed in the morning. They lay on their arms all night, making every preparation to receive a renewed attack, but in the morning Santa Anna had retreated to Agua Nueva. The loss of the Mexicans, in killed and wounded, was about 2,000; that of the Americans, 746. The American army engaged at Buena Vista consisted in large part of volunteers, most of whom had no military experience; and on account of the unequal daring and composure displayed by them at different times the battle would have been lost again and again but for the heroic conduct of the regular artillery.

**BUENA VISTA**, a south-west county of California, separated from Tulare co., April 30, 1856. The Coast range forms its western boundary and the Sierra Nevada traverses its eastern part, the two ranges meeting at the southern extremity of the county. A vast extent of surface between these ridges is overgrown with rushes, and is frequently inundated. On the northern border lies Tulare lake, and in the south-western part are Kern and Buena Vista lakes, the country around which is said to be of great fertility. Kern river is the principal stream.

**BUENAVENTURA**, or **SAN BUENAVENTURA**, a seaport town of California, situated near the boundary between Santa Barbara and Los Angeles counties, on Santa Barbara channel. It was founded about 1782, was formerly a missionary station, has a tolerably good harbor, and is surrounded by a rich, beautiful country, remarkably prolific in many varieties of fruit.

**BUENAVENTURA**, a town in the department of Cauca, New Granada. It is situated on the small island of Kasakral, near the mouth of the river Dagua, at the head of the bay of Choco. The inhabitants are mostly negroes or mulattoes.

**BUENO DA SYLVA**, **BARTOLOMEU**, surnamed **AKHANGUERA**, or Great Devil, a Brazilian adventurer of the 17th century, who fol-

lowed the traces of a previous adventurer, Manoel Correa, in search of the gold mines of Goyaz. He died before he could consummate his conquest, although he had satisfied himself as to the existence of the new Eldorado, and even awed some of the savage inhabitants into submission by threatening to burn their lakes and rivers, convincing them of his ability to do so by exhibiting brandy in a state of ignition on a tin dish.—After his death his ambitious designs were carried out by his son **BARTOLOMEU**, who equipped a regular exploring expedition, under the auspices of Governor Menezes. This failed, but in 1726 he undertook a second expedition at the head of an army of *bandeirás* or filibusters. He now identified the places which his father had visited, seized some of the treasures of Goyaz, and returned to St. Paul with \$15,000 in gold dust. This induced the government to appoint him lieutenant-general and regent of the new province. He finally died in the greatest poverty.

**BUENOS AYRES**, a republic of South America, formerly a constituent of the Argentine confederation or republic of La Plata, but now maintaining an independent, though somewhat anomalous position. The state lies between lat. 33° and 41° S., and long. 56° and 71° W.; is bounded N. by the states of Mendoza, San Luis, Cordova, and Santa Fé, and the river Parana; E. by the river La Plata and the Atlantic ocean; S. by the ocean and Patagonia; W. by the Andes, which separate it from Chili. The state is of irregular form, but has an average breadth from N. to S. of 450 miles, and an average length from E. to W. of about 750. The eastern portion, lying on the ocean and the Plata, is fertile and well watered; the Salado, an affluent of the Plata and its branches, irrigate its surface. Further west and south-west it stretches off toward the Andes in those vast plains, known to the inhabitants as pampas, on which for hundreds of miles no hill, rock, or tree varies the dreary uniformity of the surface. Here, in the absence of water-courses, the soil is sandy, and often barren, and covered with a saltish efflorescence. Occasionally salt lakes make their appearance, and their exhalations, with the glitter of the salt-bestrewn plains, contribute to produce the mirage which, as in eastern climes, deludes the wayworn traveller with visions of fair fields and flowing streams. From these sandy plains a burning wind, much like the sirocco of the East, sweeps over the eastern part of the province, scorching vegetation, and parching the skin like the breath of a furnace. In the south-east part of the state, and on its western boundary, there are mountains of considerable height, the latter forming a part of the Andes. The principal rivers are the Salado in the east, the Negro and the Colorado in the south-west, and the Desaguadero in the west, which discharges into a salt lake called Urre Lauquen, in the interior. Beside this lake there are many salines scattered over

the state, which, in the rainy season, become lakes, but during the summer form extensive salt marshes. The climate in the northern part is mild and pleasant, the temperature varying from 40° to 90° F. in the year. Tropical fruits flourish to some extent in the vicinity of the city of Buenos Ayres. In the south it is colder, and ice and snow occasionally appear; but the country generally is very healthy, and the air pure and dry. The S. W. wind is usually accompanied with thunder, and during its prevalence frequent hurricanes occur. The vast pampas furnish abundant and luxurious herbage for immense herds of wild horses and cattle, the skins, hides, horns, hair, tallow, and beef of which form the chief articles of foreign export of the state. Salt is produced at some of the salines, and the city of Buenos Ayres was for many years supplied from the lake of Urre Lauquen, distant 450 miles. Since the restrictions have been removed from commerce, it has been found cheaper to import it. The country produces saltpetre, clay, iron, cotton, rice, grain, sugar, tobacco, flax, hemp, wool, ipecacuanha, fruit, wine. Among the wild animals are jaguars, martens, foxes, tapirs, &c. Llamas, horses, cattle, sheep (*vicuña*), are domesticated. Serpents (including many poisonous species) abound. The most remarkable birds, are the emu, the black-necked swan, &c. In 1856 the number of cattle was 4,502,090, of horses 2,196,668, and of sheep 7,966,725. — Buenos Ayres shook off the Spanish yoke in 1810, and in connection with the adjacent states formed a confederation, known as the republic of La Plata, or the Argentine republic. But the ambition of the state of Buenos Ayres to secure to itself the lion's share of the advantages of a confederation, led to repeated changes, and the states were sometimes isolated and independent republics, or rather anarchies; at other times confederates like the United States; at others still, merely in a state of alliance. During the administration of Rosas (1835-'52) they were virtually allied, though not without occasional rebellions, and his efforts were directed to the aggrandizement of the state and city of Buenos Ayres, at the expense of the other states and countries of the confederation. The final separation from the Argentine confederation took place in 1858. A new constitution was framed in Sept. 1854, liberal in its general tendencies, establishing the freedom of the press and the independence of the judiciary. (See ARGENTINE CONFEDERATION.) The predominant religion is Roman Catholic, but all creeds are tolerated. The national independence of Buenos Ayres was recognized by several countries in 1855, most of which, however, have since withdrawn this recognition, and now maintain diplomatic relations only with the Argentine confederation. Dr. Valentin Alsina has been governor of Buenos Ayres since 1857. Receipts in 1855, \$3,000,000; in 1856, \$3,400,000. Expenditures in 1854, \$2,500,000. Public debt, with interest, domestic, \$925,000; English loan (£1,750,000), \$8-

750,000; in paper money, without interest, \$5,250,000; total, \$14,925,000. Standing army, 6,370 men. Naval force, 3 steamers, 2 corvettes, and 4 inferior boats. Pop. of Buenos Ayres in 1856: Northern district, 58,844; western district, 66,184; southern district, 82,877; rural pop. 202,855; pop. of the city of Buenos Ayres, 101,000; total in 1856, 308,855, of whom not far from 40,000 are Europeans, and a large proportion of the others Indians and mixed races. The population, in round numbers, is estimated by some authorities at 400,000. Our estimate, however, which is based upon the census of Oct. 1855, is probably the most correct.

BUENOS AYRES (*Ciudad de Nuestra Señora, Ciudad de la Trinidad*), capital of the above-described state, situated on the S. W. shore of the estuary called the Rio de la Plata, about 150 miles from its mouth. The estuary is here about 86 miles wide. Lat. 34° 35' S., long. 58° 22' W. The plan of the city is regular, and the streets are laid out in squares of about 500 feet, and paved with granite brought from the island of Martin Garcia, opposite the city. The houses of the native inhabitants are built of brick, and are usually of only a single story in height, but enclose a court after the Spanish fashion. Little or no wood is used in the construction of these houses. The dwellings of the foreign residents are usually three stories in height, and resemble similar residences in this country. The principal public square, the Plaza del 25 de Mayo, has a monument erected in honor of South American independence; it is adorned with fountains, and surrounded by fine public buildings, among which are the cathedral, one of the largest and richest in South America, the bishop's palace, the hall of justice, the police office, &c. Beside the cathedral there are 15 other Catholic churches, and 8 Protestant, viz.: an Episcopal, a Presbyterian, and a Methodist, intended for foreigners. There are 2 monasteries and 2 nunneries. There are 2 colleges, a female college attached to the church of our Lady of Mercy, and a college for young men, attached to the church of St. Francis, and which might, with propriety, be called a university, since it includes also a department of natural history, with a very fine museum, an observatory, a normal school, a mathematical school, and a school of painting and drawing; its library contains over 80,000 volumes. There are several literary and scientific societies in the city, among which may be named a philosophical, a mathematical, and a medical society; an association of jurisprudence, and an agricultural society; that of the friends of the natural sciences is the most important. There are several journals published at Buenos Ayres which are conducted with ability, but with a strong partisan bias. One of them, *La Prensa*, gives occasionally interesting accounts of the new settlers, mainly from Germany and Switzerland, to many of whom the great rivers of the Argentine states offer greater attractions than the inaccessible inland districts of Brazil. The chari-

table institutions are, a general hospital, and a foundling hospital. The fort is an imposing structure, and contains most of the military offices. There is also in the city a military depot, called the Retiro, capable of receiving 8,000 soldiers. The hall of representatives, built in imitation of the capitol at Washington, and the custom house, are the only other public buildings particularly worthy of notice.—The commerce of Buenos Ayres is rendered difficult by the shallowness of the Plata in the vicinity of the city, and the want of a good and commodious harbor. Vessels drawing more than 12 feet of water cannot come nearer than 6 or 7 miles, and their cargoes must be brought to the city on bullock carts, or by lighters. The south-eastern winds endanger vessels in the harbor, by the violent surf which they create. The inner harbor is shoal, and only large enough to accommodate the coasting trade. Yet with all these drawbacks the commerce of Buenos Ayres, as the principal port of entry for the states of the Argentine confederation as well as for Paraguay, is large and constantly increasing. The inland trade carried on between Buenos Ayres and Peru and Chili, is very considerable. The finest tobacco, sugar, wax, Paraguay tea, &c., are brought from the interior, and the foreign trade is daily becoming of greater magnitude. The tonnage which entered the port in 1843 was 105,288, and that which cleared, 84,117. In 1849 the clearances were 110,984 tons, of which 22,469, or  $\frac{1}{5}$ , were for the United States. Vessels entered in 1855, 619; in 1856, 607; cleared in 1855, 332 with freight, and 260 in ballast; in 1856, 358 with freight, and 198 in ballast. We subjoin also a table of the trade of 1855 with the different parts of the world:

Exports from Buenos Ayres and Argentine republic (through Buenos Ayres) to France in 1857 ..... \$2,998,558  
Imports from France to Buenos Ayres, &c., 1857. 2,896,091

In 1854, owing to the anarchical condition of the country, the clearances for the United States were only 12,914 tons, and the entries from that country, 10,356. In 1857, with a more quiet and peaceful condition, trade had revived, and the commercial intercourse with the United States, which had formerly been carried on mostly in foreign bottoms, was almost entirely conducted in American vessels. The tonnage of that year, entered at the port from the United States, was 28,235, while that which cleared for the United States was 16,872, showing an increase of tonnage entered from the United States of more than  $\frac{1}{4}$  in 3 years. The imports of Buenos Ayres from the United States the same year were \$1,313,807, while its exports to this country were \$2,784,473. She received from us lumber, bacon, lard, flour and other breadstuffs, rice, sugar, hops, spirituous liquors, spirits of turpentine, household furniture, carriages, boots and shoes, nails, ironware, drugs, cotton goods, paints, tea, spices, matting, cordage, twine, and a trifling amount of manufactured tobacco. Her exports were almost entirely confined to the raw materials of commerce, as her manufactures consist only of the most simple articles. The following table exhibits the principal exports to the United States in 1857, with the value of each:

Articles.	Quantities.	Value.
Specie, gold.....	....	\$10,400
Copper and tin, in pigs and bars.....	....	80,351
Leather tanned and dressed, doz. skins.....	1,851	9,189
Hatters' furs.....	....	25,983
Raw hides and skins.....	....	1,733,671
Hair unmanufactured.....	....	191,497
Wool, pounds.....	5,758,519	694,786
Nutmegs, ".....	801	553
Tallow, ".....	16,238	1,108
Rags, ".....	91,818	1,705
Unmanufactured articles.....	....	25,653
Total.....	.....	\$2,788,890

—The city is poorly supplied with water and fuel; the wells are all brackish, and there are few or no public cisterns; the river water is good, but is carried around in butts, and sold at a very high price. The wealthier citizens have tanks and cisterns on their premises, in which they collect rain water. The fuel is coal brought as ballast in English vessels, and the refuse wood from the fruit plantations established on the islands in the river, by the Jesuits, in the 16th century. From these plantations, covering over 20 miles of surface, the city is also supplied with fruits, and particularly oranges, peaches, and lemons. The procuring fruit and fuel from these sources is not unattended with danger, as the plantations are infested with panthers. The environs of the city are very beautiful, being occupied mostly by the country seats of the wealthy inhabitants. The climate is dry and bracing, and very healthy. Living is very cheap. Meats are especially low, the best beef being sold at

Imports from	
Great Britain.....	\$4,880,000
France.....	2,700,000
Northern Europe.....	918,000
Gibraltar, the Mediterranean, and Spain.....	648,000
United States.....	1,030,000
Brazil and other countries.....	1,183,000
Total.....	\$11,894,000

Exports to	
Great Britain.....	\$3,239,454
United States.....	8,244,944
France.....	2,181,362
Belgium.....	1,810,716
Spain.....	1,253,183
Cuba.....	639,384
Italy.....	987,152
Brazil.....	925,080
Chili.....	298,524
Hamburg.....	223,707
Holland.....	115,287
Other countries.....	52,914
Total.....	\$15,250,936

Exports from Buenos Ayres and Uruguay to Great Britain:

From Jan. 1, to May 1, 1857.	Same period, 1858.
Hides, number.....	25,458
Tallow, cwt.....	8,150
	1,394

Imports from Great Britain into Buenos Ayres:

January 1 to April 1, 1857.....	\$1,400,000
1858.....	1,375,000

from 2 to 3 cents per pound.—The city dates from 1580, at which time it was founded by Don Juan de Garay. In 1776 it was made the seat of the viceroyalty, and in 1778 the port was partially thrown open by the Spaniards. The repeated reverses it has met with in the last 20 years have materially interfered with its growth and prosperity, rendering property insecure, and almost annihilating its commerce; but since 1852, its trade has greatly revived, and its population increased. Population in 1856, 101,000, and since then variously estimated from 100,000 to about 150,000; owing to the fluctuation of the foreign population, the French and English alone, numbering not less than about 25,000.

**BUFF**, a mixed color, something between pale pink and pale yellow. It was adopted by the English whig party, in combination with blue, as their distinctive color; and, possibly in consequence of that circumstance, the whig party having been opposed throughout to all the measures of government which led to the American revolution, was chosen as the national uniform of the United States at the commencement of the revolutionary war.—**BUFF LEATHER**, a strong soft preparation of bull's or elk's hide, which was worn under the mail armor of the middle ages, to deaden the effect of a blow, which might drive in the pliable rings, so as to inflict a painful contusion. As armor fell into disuse, buff coats, which, if of the best quality, would turn a broadsword cut, and even a pistol ball, were often worn in lieu of complete steel, either with or without a cuirass and gorget of metal. The buff coats of the time of the commonwealth were often lined with white or tawny satin, and splendidly laced with gold or silver. The name is, of course, derived from its color. Modern buff leather, of which soldiers' crossbelts and other accoutrements are ordinarily made, is for the most part made of common buckskin.

**BUFFALO**, the name of 2 species of the true oxen, as distinguished from the bisons, to which they bear at best but a faint resemblance, though they are included with them in the genus *bos* (Linn.) The general characteristics of the buffalo are conical horns, inclining successively outward, downward, backward, upward, and forward, with their tips on a plane above and a little in front of the top of the forehead; forehead convex, and longer than broad; the intermaxillary bones elongate, shelving back, and giving prominence to the nasal bone. This animal must on no account be confounded with the American bison (*bos Americanus*), which is almost universally called the buffalo, as its furry hides, prepared by the Indians, are called buffalo robes. The 2 species of the true buffalo are the *bos bubalis* (Linn.) of India, and the *bos Caffer* (Sparm.) of South Africa. They are called, on both continents, simply the buffalo, but are separated zoologically as the Indian and Cape buffalo. In India, the buffalo is again subdivided into the tame and the wild, although

they are both of the same species. Mr. B. H. Hodgson, who has done much for the zoology of British India, thus speaks of them: "The bhainsa, or tame buffalo, is universal in India. The arna, or wild buffalo, inhabits the margins rather than the interior of primeval forests. They never ascend the mountains, and adhere, like the rhinoceros, to the most swampy sites of the districts they inhabit. There is no animal upon which ages of domesticity have made so small an impression as upon the buffalo, the tame being still most clearly referable to the wild ones, frequenting all the great swampy jungles of India. The arna ruts in autumn, gestating ten months, and produces one or two young in summer. It lives in large herds, but in the season of love the most lusty males lead off and appropriate several females, with which they form small herds for the time. The wild buffalo is fully  $\frac{1}{2}$  larger than the largest tame breeds, measuring  $10\frac{1}{2}$  feet from snout to vent, and 6 or  $6\frac{1}{2}$  feet high at the shoulders, and is of such power and vigor as by his charge frequently to prostrate a well-sized elephant. It is remarkable for the uniform shortness of the tail, which does not extend lower than the hock, for the tufts which cover the forehead and knees, and lastly for the great size of its horns. They are uniformly in high condition, so unlike the leanness and angularity of the domestic buffalo even at its best." The arna variety is known to naturalists as the *bos arni*. Its horns, which grow out horizontally from either side of a flattened frontal bone, rise in a regular crescent upward and backward until near the point, when the tips, which are nearly equidistant with the bases, turn slightly forward. The bases of the horns, which are flattened and deeply corrugated in irregular rings through  $\frac{2}{3}$  of their length, and smooth only at the points, often measure each upward of 18 inches in circumference, while their length, taken along the outer curve, has been known to exceed 5 feet in either horn, and to include a distance of 10 feet from tip to tip. In no respect does it differ from the bison more than in its covering, which consists of smooth, short, thin hair, resembling the bristles of a hog more than the coat of the ox family. It is much addicted to wallowing in the mud, is a fierce and vindictive animal, and in its native jungles is more than a match for the Bengal tiger, which never dares to attack it unprovoked. This buffalo was introduced into Egypt, Greece, and Italy during the middle ages. Its great strength makes it peculiarly adapted for draught; its milk is good, its skin highly valued, but its flesh is much inferior to that of the ox. It is a singular fact that it prefers marshy and even malarious places and coarse plants.—The *Caffer* or Cape buffalo of Africa has very large, black horns, placed close together and flattened at the base, broad, rough, and sinuously ringed, covering the whole front with a sort of horny helmet, with a smooth tip curved upward and

inward. Its horns are more horizontal in position than those of the arna, which are sometimes elevated 2 feet above the frontal bone. It has pendant ears and dewlap, skin with dark, stiff hairs about an inch long, and though of massive proportions and extremely ferocious, has neither the height nor the activity of its Indian congener. Neither species have either hump or mane, which at once distinguishes them from the bison. The Cape buffalo is a native of all South Africa; it congregates in immense herds, but the old bulls, which become quite gray and are often almost destitute of hair, sometimes adopt solitary habits, when they grow very morose and savage, attacking both men and animals in mere wantonness, and when killed, trampling and kneeling on the carcasses and crushing them with their massy horns and frontlets, until every bone is broken. Gordon Cumming, in his South African wanderings, gives many accounts of this powerful and savage brute, which has not, however, the power of defending himself against the lion, as his Indian relative has against the tiger, but, on the contrary, often falls a prey to him by open attack. This animal also delights to wallow in the mire, like a hog, and when heated by hunting, plunges into the first water-pool, in which he wholly submerges himself, allowing only the extremity of his muzzle to protrude among the water plants and floating leaves of the nymphææ. All travellers dwell on the loud bellow which he utters in the death agony.—There is an Indian wild bull (*bos gaurus*), little known, which appears to be intermediate between the bison and buffalo. General Hardwicke and Captain Rogers describe it as a genuine bull, neither bison nor buffalo; but Major Walter Campbell, the author of the "Old Forest Ranger," who gives a full description of this rare animal, which he calls the jungle *oolgha*, makes it clearly a bison. From the character of its horns, which resemble those of the Cape buffalo in form, though they have not the horny helmet over the brow, and of its hump, supported by hump-ribs, and of its mane, it is presumed that, on further investigation, it will be elevated into a distinct genus. (See Bison.)

BUFFALO, a city and the county seat of Erie co. N. Y., situated at the eastern end of Lake Erie, and at the head of Niagara river, lat. 42° 53' N., long. 78° 55' W. It was founded by the Holland Land company in 1801, and during the war between the United States and England, in 1814, was burned by a force of Indians and British. The city was laid out by Joseph Ellicott, upon a plan which has been greatly admired. The streets are wide and straight; they generally cross each other at right angles. A few of the side streets, however, enter the principal avenue of the town, Main street, at an angle of 45°. These latter streets, crossing the others at their points of intersection, form a large number of places or squares, give variety to the outlines of the city, and destroy the monotony which would have been produced by

a rigid adherence to a rectangular plan. The city is well paved, is lighted with gas, and is supplied with water from the Niagara river. The site is a plain, which, from a point about 2 miles distant from the lake, slopes gently to the water's edge. The uplands command an extensive prospect of the lake and river, and afford beautiful situations for suburban residences. The city has no park, but there are several small public squares. Buffalo is an instance of the rapid growth so often seen in American towns. In 1814 it was a hamlet of 200 houses. The following table shows the increase in population from the year 1810:

1810.....	1,506	1840.....	18,913	1855.....	74,914
1820.....	2,095	1845.....	54,656	1858 (est'd)	90,000
1830.....	3,658	1850.....	49,764		

The increase in taxable property during 5 years has been as follows:

1853.....	\$23,597,300	1856.....	\$35,498,746
1854.....	29,978,509	1857.....	37,437,061
1855.....	33,687,711		
Total debt, Dec. 31, 1857.....		\$704,555 83	
Resources of the city at the same period.....		75,900 57	

Buffalo was incorporated by act of the legislature in 1832. It is divided into 13 wards, each of which is represented in the common council by 2 aldermen. The legislative powers are vested in one body, the common council. The mayor is the chief executive officer. He has the veto power, and measures to which he refuses his assent must receive a  $\frac{2}{3}$  vote in the council in order to be passed. He is the head of the police; his appointments must receive the approval of the council, but he has, in certain cases, a summary power of removal. Those departments of the executive which are connected with the finances, schools, public works, and law, are independent bureaus, and the officers are elected by the people. All of these officials hold their places for 2 years. The fire department is composed of 18 engine, 3 hose, and 2 hook and ladder companies. The chief engineer is elected by the members of the department, subject to the approval of the common council.—For educational purposes the city is divided into 82 districts, in each of which there is a school. All children who reside in the district may attend without charge. In addition there is a school for colored children, and a free academy called the central school, where instruction is given in more advanced studies. Candidates from the district schools are admitted into the central school, after being subjected to a thorough examination. Two hundred and twelve teachers are employed in these schools. In 1856 they were attended by 19,098 pupils, the average daily attendance being 7,878. An officer called the superintendent of schools is at the head of this department, who appoints the teachers. This educational establishment is in every respect most admirable, and the cost of maintaining it, during 1858, is estimated at \$115,000.—The climate of Buffalo is more equable than that of any other American city in the same latitude. The winter and spring months are boisterous,

but the heats of summer are tempered by the lake winds. Owing to the salubrity of its climate, and an admirable system of sewerage, Buffalo will compare favorably with any other town in point of healthfulness. The yearly mortality is stated to be in the proportion of 1 in 50.—The United States government has lately built a fine edifice for a post-office, custom-house, and court-house. The state is now (1858) constructing a large arsenal, and the city contains 4 fine market houses; but the other public buildings are not important. The private architecture is creditable; there are many handsome banks, stores, and dwellings. The number of dwellings in the city is estimated at 10,613, valued at \$21,520,100. There are 57 churches in Buffalo, estimated at about \$1,000,000: 10 Presbyterian, 6 Episcopalian, 8 Methodist, 6 Baptist, 14 Catholic, 1 Unitarian, and others. St. Joseph's cathedral (Catholic), and St. John's and St. Paul's churches (Episcopal), are unusually beautiful edifices. St. Joseph's is in the decorated Gothic style; its shape is cruciform, and the eastern front is flanked by 2 lofty towers. It is built of blue stone, with dressings of white sandstone, and is not yet (1858) entirely finished. This church contains a stained glass window, lately made at Munich, which is the finest specimen in this department of art in the country. St. John's church is a simple parallelogram in the style of the transition from the early English to the decorated Gothic, with a square tower upon the northwest corner. It is built of blue limestone, and is worthy of notice for having an open timber roof. St. Paul's is in the early English style; the material is red sandstone, and the building is very remarkable for its picturesque appearance and for the variety of its outlines.—The university of Buffalo was chartered in 1846; the medical department is the only one in operation. This school has a fine building, and is under the charge of a corps of highly accomplished teachers. The Young Men's association is a society of citizens formed for literary purposes; any suitable person may become a member upon making application. The yearly fee is \$3. It has a library of 9,350 volumes, and the reading-room contains 57 newspapers and periodicals; a considerable collection of shells and minerals has been made, and some steps have been taken toward the establishment of a gallery of the fine arts. During the winter a series of popular lectures are delivered before this association by distinguished gentlemen from different parts of the country. The German Young Men's association, and the Young Men's Christian union, are similar institutions; some religious qualification is necessary in order to procure admittance to the last. The Buffalo female academy is liberally endowed; it is delightfully situated, and is now in a very flourishing condition. The Forest Lawn cemetery is situated in the suburbs of the city, and contains 75½ acres of land. The principal charitable institutions are the Buffalo orphan asy-

lum, hospital of the sisters of charity, female orphan asylum (Catholic), Buffalo general hospital, children's aid and reform society. The German, Scotch, English, and Irish residents, all have societies for the relief of unfortunate countrymen. There are 7 lodges of masons, 3 chapters of royal archmasons, a grand commandery of knights-templars, 2 temperance organizations, and 6 lodges of the order of odd fellows. There are 9 banks of issue, with an aggregate capital of \$2,633,091 (Dec. 31, 1837), 3 savings banks, and a trust company. In 1855 Buffalo had 265 manufacturing establishments, employing 6,848 persons, having a capital invested of \$4,000,000, and producing \$10,169,829 worth of manufactures. In 1857 the number of manufactories is stated at 450. Ship building, for which Buffalo possesses many facilities, is extensively carried on. In 1857 there were 7 ship yards, from which were launched 18,256 tons of shipping, of the value of \$1,180,800.—Buffalo is the western terminus of the Erie canal, to the construction of which the city owes its prosperity. It is likewise the principal western station of the New York central railroad. The other railroads are the Buffalo and State Line, which connects with the roads of Pennsylvania, Ohio, and other western states; the Buffalo, New York and Erie railroad, which connects with the New York and Erie railroad at Corning and Hornellsville; and the Buffalo and Lake Huron railroad, which intersects the Great Western railroad of Canada. A new road is under contract which will make a connection with Pittsburg and the coal fields of Pennsylvania, and for the purpose of facilitating railroad communication it is now proposed to bridge the Niagara river.—The principal business interests of Buffalo are those of commerce. It is the largest commercial town on the lakes. The harbor is formed by the Buffalo creek, a small stream, which is navigable for one mile from its mouth. The entrance is protected by a breakwater upon the south side of the creek, which is 1,500 feet long. A breakwater has likewise been constructed in Niagara river upon the north side of the creek, by which a new and capacious harbor has been made. In addition, there is a large number of slips and basins for the accommodation of shipping and canal boats. The entrance to the harbor and the approaches from the river are defended by a small fortification called Fort Porter, situated on the heights to the north of the city. In 1857, 242 vessels were owned and enrolled at this port, 80 steamers and 160 sail vessels, with an aggregate tonnage of 91,974 tons; value, \$3,640,950; 160,000 tons of shipping were engaged in the trade of Buffalo, nearly ¼ of the entire lake marine. The number of entrances and clearances of vessels to and from the port was 7,581; tonnage, 3,221,806. The value of imports by lake was \$36,913,166; by canal, \$47,627,526; by railroad, \$65,500,000; making a total of imports of over \$150,000,000. The exports were about the same. Grain and flour

are the chief articles of commerce. The following table of the grain, and flour reduced to wheat, received during the last 8 years, will show the extent of this trade:

1850.....	72,056,199 bush.	1854.....	22,236,482 bush.
1851.....	17,772,979 "	1855.....	25,022,177 "
1852.....	20,290,404 "	1856.....	26,946,560 "
1853.....	15,267,236 "	1857.....	20,398,454 "

Buffalo, however, is not a mere place of transshipment. The transactions in the grain market are on a large scale. In 1857, 10,859,000 bushels of grain were sold here. The trade with Canada is active; the aggregate value of exports and imports, in 1857, was \$2,259,748. The British government considered it of sufficient importance to justify the establishment of a consulate. The immense increase of the grain trade called for increased facilities for handling the cargoes on their arrival. Until 1844 the discharging of cargoes was effected in buckets; since that time it has been done by steam, which despatches in a few hours what formerly required whole days. There are now in Buffalo creek 12 elevators, with a capacity for storage of 2,230,000 bushels, elevating per hour 36,500 bushels. A new elevator, in course of erection, is estimated to store 250,000 bushels, and to elevate about 8,000 bushels per hour. The cost of discharging a cargo is  $\frac{1}{2}$  cent per bushel. The elevators also possess facilities for loading canal boats.—Eight daily papers are published in Buffalo, of which 3 are in the German language; 6 of the daily papers publish weekly editions, and there are 11 other weekly or monthly publications.

BUFFET (Fr. *buffet*) was formerly a little side apartment for holding china, plate, glassware, and articles of vertu; it is now generally superseded by the sideboard.

BUFFON, a French village, department of Côte-d'Or, canton of Montbard, situated on the Armançon, 11 miles N. of Semur. The seignory of this village belonged to the naturalist Buffon, for whom it was erected into a county. It has several iron founderies and forges. Pop. 405.

BUFFON, GÉORGE LOUIS LECLERC, comte de, a celebrated French naturalist, born at Montbard, in Burgundy, Sept. 7, 1707, died in Paris, April 16, 1788. He was the son of Benjamin Leclerc, counsellor of the parliament of Dijon, and was destined to occupy the same office. He received a good education at Dijon, and made rapid progress in his studies, especially in mathematics and astronomy. At the age of 20 he made the acquaintance of a young English nobleman (the duke of Kingston), who was travelling with his tutor, and agreed, with the permission of his father, to join them in their travels and studies. They visited together many parts of France, Switzerland, and Italy, during a period of 18 months. The spectacle of nature with which he thus became familiar made a deep impression on his mind, presenting a strong contrast to the most perfect of human works in the activity of its operations and the completeness of its productions. From this time he resolved

to devote himself to the pursuit of science. He visited London with his friends, and there pursued the study of the English language, and at the same time eagerly intent on improvement in his favorite branch of research. He there translated Newton's treatise on fluxions from the Latin, and Hales's "Statics" from the English, into the French language. The 2 manuscripts were presented to the academy of sciences of Paris, and favorably received; the 1st being printed in 1735, and the 2d in 1740, with the approbation of the academy. On March 18, 1739, he was elected member of the academy of sciences, and during the same year appointed director of the *jardin du roi*, now called the *jardin des plantes*. This appointment called his attention more exclusively to natural history, and diverted his mind from the abstract speculations of philosophy. In lieu of philosophizing on the theory of creation, he resolved to continue the work so brilliantly commenced by Aristotle and by Pliny, in describing the organic and the inorganic forms of nature on our globe; and to surpass his predecessors in the allurements of style, and the rich variety of facts, as much as modern art and science surpass those of ancient Greece and Italy. With this view, he enlisted the coöperation of Daubenton in the anatomical and scientific portions of the work, reserving to himself the more external forms, habits, instincts, and geographical distributions of the animal kingdom. Daubenton and Buffon worked together diligently some 10 years, and in 1749, the first 8 volumes of the "Natural History" appeared; 12 more volumes following at intervals between 1749 and 1767. Few works have ever met with such success; the study of natural science, and particularly natural history, became universally attractive. Buffon's "Theory of the Earth" enlisted numerous admirers among the more imaginative readers of his works, while those of cooler judgment wondered how a man who had written the preface to the translation of one of Newton's works, could possibly put forth a theory of such a vague and speculative nature. In that preface Buffon wrote the following words: "The system of nature combines, perhaps, several principles; these principles are unknown to us, and their combinations are not less concealed. How is it possible, therefore, for man to flatter himself that he can unveil the mysteries of nature, with nothing to guide him but his own imagination?" And yet Buffon had little else than his own imagination, in addition to some scattered facts, to guide him in building up a theory of the foundation of the globe which we inhabit, and the numerous revolutions it has undergone in the course of ages. Buffon made the best attempt he could to form a theory of unity, and failed; but his attempt and failure will help other minds to soar into the higher spheres of thought, and reach more nearly to the final truth. His general views of the animal creation and the natural history of man were more successful than his "Theory of the Earth;" and, notwithstanding



the obscurity of his ideas with regard to "organic molecules," and "interior moulds of form," in his theory of generation, his ideas of relation between form and substance were felt to be at least poetically true, in his own day, and they have since been demonstrated scientifically by the experiments of Flourens on the gradual appearance and disappearance of coloring matter in the bones of living animals. "That which is the most constant and unalterable in nature," says Buffon, "is the type or form of each species; that which is the most variable and corruptible, is the matter or the substance which clothes the form;" and this has been experimentally proved by Flourens, in addition to the evidence of daily nutrition and loss of substance in every individual organism. His eloquent description of the gradual development of the human organism, and the concomitant unfolding of sensation and the faculties of thought and reason, is a masterpiece of observation and delineation never before equalled in its way, nor has it been surpassed. The infant learns by slow degrees to see and feel and hear distinctly, and to separate sensations and ideas, which arrive in a confused mass, into relative degrees of size and shape, distance, force, and motion; and this power of analysis and synthesis increases as the child develops into manhood or womanhood, until the highest powers have been attained of which the individual is capable; some attaining to colossal heights of genius at maturity, while others never grow beyond the stature of a dwarfed intellect; just as the body of one type of animal attains to the proportions of a lion or an elephant, while others, of like nature, never grow beyond the stature and the force of a domestic cat or a small pig. The body is developed slowly, and more slowly still the mind; and Buffon paints in glowing tints the process of unfolding, which suggests to us the difference between the animal and the human powers of discrimination, reason, and progression; the difference between one man's mental development and another's, as the two pass through the animal degrees of infancy, to reach the human, and then stop at very different heights of the ascending scale. The first class of animals described by Buffon were the quadrupeds; the second, birds; and here, with regard to the animal kingdom, his labors ceased. The "History of Domestic Animals," published between 1753 and 1756, was particularly interesting to the farmer and the general reader. That of the carnivorous tribes and other wild species was published between the years 1753 and 1767. More than 8,000 species and varieties are there described. The "History of Birds" was published in 8 volumes, between the years 1770 and 1781. Daubenton then retired from the work, and Buffon obtained the coöperation of Guéneau de Montbeillard, the abbé Bexon, and Sonnini de Manoncourt. The "History of Minerals" was published between 1783 and 1785, and the "Epochs of Nature" in 1788.

The style is always good, and the illustrations rich with imagery, but the theories become more and more hypothetical and vague; but his ideas paved the way for his successors, Cuvier and Geoffroy Saint Hilaire, who have laid the foundations of true science in these branches of investigation. He, more than they, inspires the reader with a love of nature, and transforms the dry details of science into poetry and eloquence of the sublimest kind. His mind was not as analytical and accurate as that of Cuvier; not so keen in the perception of remote relations between normal and abnormal types of organism as that of Geoffroy Saint Hilaire; but he had more poetical views of truth and beauty than either, and deeper intuitions of the unitary laws of nature, physical, instinctual, and rational. His works have been reprinted many times in France, and rendered into all, or nearly all, the languages of Christendom.—He left one son, HENRI LEOLERCQ, born in 1764, who erected a monument to his father in the gardens of Montbard, and who died by the guillotine during the revolution.

BUG, Boue, or Boga, a river of Europe. It rises in Galicia, and after a course of 800 miles, during which it receives the waters of the Muchawetz, Zna, and Narew, it joins the Vistula, 18 miles N. W. of Warsaw. It forms the E. boundary of Poland.—Also, the name of a Russian river which empties into the estuary of the Dnieper. It is navigable from the sea to Vosnesensk. Total length, 840 miles.

BUGARES, or BULGARII, a religious sect in Bulgaria, otherwise known as the Catharists, from whom sprung the Paterini of Italy and the Albigenses of Languedoc and Provence. The Bulgarii themselves were a branch of the Gnostic Paulicians of the East after their amalgamation with the Manicheans. They denied the necessity of infant baptism, and rejected the Old Testament.

BUGEAUD DE LA PICONNERIE, THOMAS ROBERT, duc d'Ialy, marshal of France, born at Limoges, in Oct. 1784, died in Paris, June 10, 1849. He entered the French army as a private soldier in 1804, became a corporal during the campaign of 1805, served as sub-lieutenant in the campaign of Prussia and Poland (1806-7), was present in 1811, as major, at the sieges of Lerida, Tortosa, and Tarragona, and was promoted to the rank of lieutenant-colonel after the battle of Ordal, in Catalonia. After the first return of the Bourbons Col. Bugeaud celebrated the white lily in some doggerel rhymes but these poetical effusions being passed by rather contemptuously, he again embraced, during the Hundred Days, the party of Napoleon, who sent him to the army of the Alps, at the head of the 14th regiment of the line. On the return of the Bourbons he retired to Excideul to the estate of his father. At the time of the invasion of Spain by the duke of Angoulême offered his sword to the Bourbons, but the offer being declined, he turned liberal, and joined a movement which finally led to the revolution.

of 1830. He was chosen as a member of the chamber of deputies in 1831, and made a major-general by Louis Philippe. Appointed governor of the citadel of Blaye in 1833, he had the duchess of Berry under his charge, but earned no honor from the manner in which he discharged his mission, and became afterward known by the name of the "ex-gaoler of Blaye." During the debates of the chamber of deputies on Jan. 16, 1834, M. Larabit complaining of *Soult's* military dictatorship, and Bugeaud interrupting him with the words, "Obedience is the soldier's first duty," another deputy, M. Dulong, pungently asked, "What, if ordered to become a gaoler?" This incident led to a duel between Bugeaud and Dulong, in which the latter was shot. The consequent exasperation of the Parisians was still heightened by his co-operation in suppressing the Paris insurrection of April 13 and 14, 1834. The forces destined to suppress that insurrection were divided into 8 brigades, one of which Bugeaud commanded. In the *rue Transnonain* a handful of enthusiasts who still held a barricade on the morning of the 14th, when the serious part of the affair was over, were cruelly slaughtered by an overwhelming force. Although this spot lay without the circumscription made over to Bugeaud's brigade, and he, therefore, had not participated in the massacre, the hatred of the people nailed his name to the deed, and despite all declarations to the contrary, persisted in stigmatizing him as the "man of the *rue Transnonain*." Sent, June 16, 1836, to Algeria, Gen. Bugeaud became invested with a commanding position in the province of Oran, almost independent of the governor-general. Ordered to fight Abd el Kader, and to subdue him by the display of an imposing army, he concluded the treaty of the Tafna, allowing the opportunity for military operations to slip away, and placing his army in a critical state before it had begun to act. Bugeaud fought several battles previous to this treaty. A secret article, not reduced to writing, stipulated that 80,000 bootjoes (about \$12,000) should be paid to Gen. Bugeaud. Called back to France, he was promoted to the rank of Lieutenant-general and appointed grand officer of the legion of honor. When the secret clause of the treaty of the Tafna oozed out, Louis Philippe authorized Bugeaud to expend the money on certain public roads, thus to increase his popularity among his electors and secure his seat in the chamber of deputies. At the commencement of 1841 he was named governor-general of Algeria, and with his administration the policy of France in Algeria underwent a complete change. He was the first governor-general who had an army adequate to its task placed under his command, who exerted an absolute authority over the generals second in command, and who kept his post long enough to act up to a plan needing years for its execution. The battle of Isly (Aug. 14, 1844), in which he vanquished the army of the emperor of Morocco viz. vastly inferior forces, owed its success to

his taking the Mussulmans by surprise, without any previous declaration of war, and when negotiations were on the eve of being concluded. Already raised to the dignity of a marshal of France, July 17, 1843, Bugeaud was now created duke of Isly. Abd el Kader having, after his return to France, again collected an army, he was sent back to Algeria, where he promptly crushed the Arabian revolt. In consequence of differences between him and Guizot, occasioned by his expedition into Kabylia, which he had undertaken against ministerial orders, he was replaced by the duke of Aumale, and, according to Guizot's expression, "enabled to come and enjoy his glory in France." During the night of Feb. 22-23, 1848, he was, on the secret advice of Guizot, ordered into the presence of Louis Philippe, who conferred upon him the supreme command of the whole armed force—the line as well as the national guard. At noon of the 23d, followed by Gens. Rulhières, Bedeau, Lamoricière, De Salles, St. Arnaud, and others, he proceeded to the general staff at the Tuileries, there to be solemnly invested with the supreme command by the duke of Nemours. He reminded the officers present that he who was about to lead them against the Paris revolutionists "had never been beaten, neither on the battle-field nor in insurrections," and for this time again promised to make short work of the "rebel rabble." Meantime, the news of his nomination contributed much to give matters a decisive turn. The national guard, still more incensed by his appointment as supreme commander, broke out in the cry of "Down with Bugeaud!" "Down with the man of the *rue Transnonain*!" and positively declared that they would not obey his orders. Frightened by this demonstration, Louis Philippe withdrew his orders, and spent the 23d in vain negotiations. On Feb. 24, alone of Louis Philippe's council, Bugeaud still urged war to the knife; but the king already considered the sacrifice of the marshal as a means to make his own peace with the national guard. The command was consequently placed in other hands, and Bugeaud dismissed. Two days later he placed, but in vain, his sword at the command of the provisional government. When Louis Napoleon became president he conferred the command-in-chief of the army of the Alps upon Bugeaud, who was also elected by the department of Charente-Inférieure as representative in the national assembly. He published several literary productions, which treat chiefly of Algeria. In Aug. 1852, a monument was erected to him in Algiers, and also one in his native town.

BUGENHAGEN, JOHANN, surnamed POMMERANUS, or Dr. POMMER, a German Protestant theologian, a contemporary and friend of Luther, born at Wollin, near Stettin, June 24, 1485, died April 20, 1558. He was fully persuaded by the publication of Luther's treatise on the Babylonish captivity. He thus announces his espousal of the Protestant cause: "The whole world is blind, walking in Cimmerian

darkness; this man alone sees the truth." He assisted Luther in the translation of the Bible, and published a great number of books now little read or known.

BUGGE, THOMAS, a Danish astronomer, born in Copenhagen, Oct. 12, 1740, died June 15, 1815. After Tycho de Brahe, he was the greatest astronomer of Denmark. First officiating as professor, he afterward spent most of his time in travelling abroad, and was sent to Paris in 1798 to confer with the commission of the French institute on the subject of the introduction of uniform weights and measures, on which occasion he was made a member of that learned body.

BUGIS, a people of the Malay archipelago, noted for a spirit of enterprise and independence. Their colonies and emporia of trade are found in many islands, in all parts of the archipelago; but the chief seat of this people is in the southwestern peninsula of Celebes, in the territories of Boni and Wajoo. The Bugis traders are the chief carriers and factors of the Indian seas. In the European ports of Singapore, Malacca, Batavia, and Rhio, their richly freighted vessels are to be seen at all times. From data derived from their intercourse with these ports, they had in 1857 about 950 *padewakans*, or prahus, averaging 50 tons each, engaged in foreign trade; and probably a still larger amount of tonnage engaged in the tripang, pearl, and other fisheries, and in trade with the Papuan islands, and other portions of the archipelago not yet in direct communication with European commerce. The value of this native trade may be judged from the fact, that it is not uncommon to see in the port of Singapore the cargo of a *padewakan*, consisting of dammar, sapan wood, birds' nests, tripang, pearls and mother of pearl, ratans, gatah taban, nutmegs, and other Malaysian products, sell for \$20,000 and \$30,000, and even for as large an amount as \$50,000. Their advancement in civilization keeps pace with their active commercial development. Barbosa, in 1515, describes the Bugis and their neighbors, the Macassars, as ferocious pirates and cannibals. None of the Portuguese historians of the archipelago give any intimation of the commercial enterprise of this race. When in 1660 the Dutch conquered the Macassar tribes of Goa, no other mention is made of the neighboring Bugis people than as of an inferior race of barbarians. A little while previous to this conquest, the Macassars had invaded the Bugis territory, destroyed the pagan worship of the people, and forced them to receive teachers of the Mohammedan faith, the Bugis being the last converts to the creed of the Koran in the archipelago. Islamism abolished head-hunting, as now practised by the Dyaks in Borneo, human sacrifices, cannibalism, and many degrading superstitions; and from this period of conversion to the present day, this people have made rapid progress toward a respectable position in the civilized world. They are perhaps a more vigorous and promi-

ing branch of the brown races than the New Zealanders. They have domesticated the horse, ox, buffalo, sheep, and goat. They cultivate cotton successfully, and manufacture it into cloths of substantial quality; they are skilful workers in iron and copper; the wealthy construct houses of substantial materials, the walls of some being made of a solid mass of small broken stone and cement, which after a short time cannot be torn apart with chisel or pick, and their dwellings are generally surrounded with evidences of much horticultural taste; they build durable sailing vessels; in their navigation they use charts and compasses; they have framed a maritime code, that has been admired by authorities in naval jurisprudence; they have also framed a calendar, dividing the solar year as we do; but more than all, they have invented an alphabet and a system of phonetic writing, which none of the energetic races of western Europe, except those of Italy, have done. The government of this people is an oligarchy or elective monarchy. The state of Boni is composed of 7 principalities; and that of Wajoo, of 40. In both states the sovereign is elected by the nobles, and from the patrician class. The vote, in choosing a ruler, must be unanimous; and often the merits of every nobleman and noblewoman (females being eligible, and generally preferred), in the state, is canvassed, before a choice is made; the sovereign only holds power during good behavior, and may be deposed by an adverse majority vote in council; hence there are frequent changes in the presidency, as the executive power of the Bugis people may be justly termed. A privy council of 5 nobles is chosen to advise with the chiefs, who receive the title of *Bati-lumpo*, or "great banners." The people pay no taxes, except a small tribute of three days' labor, or an equivalent, to the sovereign; and there are no imposts on trade. Strangers visiting their ports are exempt from all charges. The princes derive their revenue from their own estates. An unrestricted freedom of intercourse with all parts of their own country, and with foreign countries, prevails; and this liberty of foreign enterprise, joined to their entire freedom of trade, may be justly regarded, as it has been observed, as both the cause and effect of the independence, enterprise, and prosperity of this interesting people. The Tuwaju, or Waju tribes, are esteemed as decidedly superior in many respects to their brethren of Boni. The Wajus have been enterprising colonists as well as traders. Large communities of this tribe have within the present century been formed in Borneo, Sumatra, in portions of Celebes distant from the parent country, and in many small islands of the archipelago. The native entrepot of Bonirati is one of their settlements. In Singapore they form a separate and flourishing community. They have not been encouraged by the Dutch to establish settlements in their possessions; and indeed the rulers of Java have so often been worsted in hostile encounters with

the brave Bugis, that they may justly dread the settlement of such a vigorous and free-spirited race among the feeble people they control. It is worthy of especial notice that among this people, the most enterprising of the eastern hemisphere, not even excepting the Chinese, and who promise, judging from their past rapid progress, to become the leading race in the archipelago, and to be probably the founders of an enlightened Oceanic empire, their women possess the fullest social and political equality. The greater portion of the sovereigns of Tuwaju and Boni, since these states have been known to Europeans, have been females. The Bugis women manufacture all the cloth, and other staples of Bugis trade; they carry on all the shopkeeping at home; and in many instances are mariners on board of Bugis vessels; and not unfrequently their navigators. A romantic event of recent occurrence, which was generally noticed by the journals of Europe and of this country, is a signal illustration of the energetic character of the Bugis women. Col. Poland of the Netherland India army, when a lieutenant in command of a detachment of European and native troops in Celebes, was attacked by a large body of Macassar insurgents. Early in the action he was wounded; and his troops being forced to retreat before overwhelming numbers, he was left on the field and was on the point of being despatched by the kreeces of the Macassars; but at this juncture, a Bugis girl, daughter of a native soldier to whom the commander had shown kindness, with klewang in hand felled the foremost Macassar, and so vigorously defended the prostrate lieutenant as to induce the others who threatened his life to follow their victorious companions. The heroic Fiena, the name of the girl, dragged the wounded man to a cool shade, nursed him in the woods for 2 weeks, and afterward led him to a place of safety. When Poland was made colonel, and retired on a pension, he married Fiena, in Holland, in 1856.

**BUGLE-HORN**, a musical wind-instrument, of brass or other metal, which, by the addition of keys, is capable of producing all the inflections of the scale. It was formerly peculiar to the chase, and was called by the Germans the *Waldhorn*, or wood-horn, but is now almost indispensable in military or orchestral bands.

**BUHL**, JOHANN GOTTLIEB, a German philosopher, born at Brunswick, in 1768, died in 1821. When only 18 years old he delivered a course of lectures on the history and literature of philosophy; and at the age of 20 he gained at Göttingen the academical prize. In 1787 he was appointed professor extraordinary, and in 1793 professor of philosophy at Göttingen. When the French revolution broke out he was deprived of his professorship, and withdrew to Russia, where he became successively professor of philosophy, history, and literature in the university of Moscow, librarian of the grand duchess Catharine, and councillor of state. He retired from Moscow before its occupation by

Napoleon, and drew up a comparison between the taking of Moscow by the French, and of Rome by the Gauls. He returned in 1814 to his native town. His summaries of the history of philosophy, and his manual of "Natural Right," are among the most important of his works.

**BUHL-WORK**, a process of inlaying by the use of the saw, the name of which is supposed to be derived from a famous Italian workman named Boule, who settled in France in the reign of Louis XIV., and carried on this business, which he invented. As practised by him the work consisted in inlaying dark-colored tortoise shell or wood with brass, cut in flowing patterns to imitate vines and wreaths of flowers. Reissner, who practised the art at a little later period, made use of woods, which contrasted well in color; and the term is now applied to his process. The general term, *marqueterie*, designates in France all the varieties of this kind of work. It consists in cutting out a pattern from two veneers of different-colored woods, which are glued together with a piece of paper laid between them; and then, after separating the pieces by running a thin knife-blade through the paper, the patterns are carefully taken out, and the figure removed from the one is inserted into the cavity of the other, the dust of the wood being rubbed in to fill the interstices. The cutting of the pattern is effected by the use of a very fine saw, of the kind known as a key-saw, which can readily be made to run around the sinuosities of the pattern. The suitable designs for this work are continuous figures, like a running vine or the honeysuckle, the saw completing these without the necessity of discontinuing the work to commence anew. When three thicknesses of wood are glued together and cut, the work is carried on more rapidly, and with more variety; but it is not found expedient to increase the number of thicknesses beyond this. In old work of this kind it has been found that different woods contract unequally, and at last produce a defective joint. This is remedied by the use of veneers of the same light-colored wood, one of which is dyed a dark color. In inlaying pearl work by the Buhl method, some modifications of the process are rendered necessary by the small size of the pieces, and by greater care required to make a nice joint. The saw in this is run through at an angle to give a bevelled edge, and the lines are filled in with strings of white metal, as tin or pewter.

**BUHRSTONE**, called by the French *silex molaire* and *pierre meulière*, the best material known for constructing millstones. It is a silicious rock found interstratified with the sands, marls, and sandstones of the tertiary formations of the Paris basin, peculiar for its regular cellular structure and hardness like flint, with which it is identical in composition, both being mere varieties of quartz. It is these qualities of extreme roughness, derived from its honey-combed structure, and great hardness and strength, that render it the best stone for

grinding. The fossil shells of land and fresh water origin, with which the rock is sometimes filled, are converted into the same hard silicious substance as the rest of the stone, and their cavities are often lined with crystals of quartz. The color of the rock is whitish, with a shade sometimes of gray, and sometimes of yellow and blue. The best quality is that about equally made up of solid siliceous and of vacant spaces. The stones are quarried at numerous localities near Paris, whence they are transported in large quantities into the interior, and to Bordeaux and Havre for exportation. La Ferté-sous-Jouarre, Seine-et-Marne, is one of the most important points where they are procured. The quarries are worked open to the day, and the stones, when extracted from their beds, are split with wedges into cylindrical forms. The pieces are cut into parallelepipeds, which are called *panes*. These are to be hooped together into the shape of millstones, answering the purpose perfectly well, while they are of much more convenient size for transportation than single stones. Good millstones of a bluish white color, and 6½ feet diameter, are worth 1,200 francs, or about \$250, each. In this country numerous substitutes for the French buhrstone have been found, the most important of which is furnished by the Buhrstone rock of the bituminous coal measures of northwestern Pennsylvania and eastern Ohio, immediately underlying the principal iron ore deposits of that region. This rock has been wrought into millstones ever since the revolution, but the French rock has, nevertheless, maintained a decided preference in all the great markets.

BUIL, BERNARDO, the first Spanish missionary in the new world, died in the convent of Ouxa, in 1520. He was selected by Ferdinand and Isabella to accompany Columbus for the purpose of converting the natives of Hispaniola. He took with him several priests, but returned to Spain after 2 years in consequence of disagreements with the governor concerning the treatment of the natives.

BUILDING, the art of construction, applicable to a variety of objects, as houses, bridges, wharves, ships, &c. The term architecture, of which building is the mechanical execution, is in common use limited to the construction of buildings for the purposes of civil life; but this is sometimes designated as civil architecture, in contradistinction to the planning and construction of forts, &c., which is called military architecture, or of ships, which is called naval architecture. Building also is commonly understood to apply to only the first class of objects, unless otherwise specifically designated. Even thus limited, it is too comprehensive for more than a general notice; so that for the details of the art reference must be made to the articles in this work upon the materials employed, as BRICK, STONE, TIMBER, BEAMS, SLATE, LIME, &c.; and also to those upon the various minor portions or processes of the construction, as FOUNDATIONS, CARPENTRY, PAINTING, WARM-

ING, VENTILATION, &c., &c. With all these subjects the practical builder should be familiar, as also should the architect, who designs the plans which the former executes. The history and principles of building have already been treated in the article ARCHITECTURE. The importance of this art to all classes of men has caused it to receive especial attention with all cultivated nations; and from early periods there have been able treatises elucidating the various processes it includes. The modern progress it has made has called forth numerous works and periodicals devoted to this subject, among which may be named as particularly adapted to the wants and tastes of this country, Lefever's "Modern Builder's Guide" (New York, 1846), and Sloan's "Model Architect." Among English works, those of London, and the periodical called the "Builder," may particularly be referred to. A very elaborate work by Rondelet was published in Paris in 1880-'82, in 5 vols. quarto, with a folio volume of plates, entitled *Traité de l'art de bâtir*.

BUITENZORG, the official name of the ancient province of Bogor, in the island of Java, now forming a residency; bounded N. by the residency of Batavia, E. by Krawang, S. by the Prayangan regency, and W. by Bantam. Area, 1,276 sq. m.; pop. 320,756, of whom 650 are Europeans, 9,580 Chinese, and 28 Arabs. The name was first given to a country seat of the Dutch governor-general, and signifies "without care," or equivalent to *sans souci*. This rural residence of the Dutch viceroy is now a place of considerable magnificence; being situated nearly 1,000 feet above the level of the sea, it enjoys a much more invigorating climate than Batavia, which is 40 miles distant. Many fruits of temperate climates, the cherry and plum, and every variety of European esculent vegetables, are cultivated with success in the gardens of Buitenzorg. A park enclosing several tigers and other wild beasts, large tanks filled with the fresh-water fish of the archipelago, and aviaries containing cassowaries, rhinoceros birds, and other remarkable birds of these islands, form a part of the oriental features of this palatial residence. The grandeur of the surrounding mountain scenery is very imposing. A company was formed, partly American capitalists, to construct a railroad from Batavia to Buitenzorg, but the government withdrew permission to go on with the work, even after the locomotives and other material had been imported. However, an electric telegraph is established between the capital and the seat of the viceroy; but it is used exclusively for government purposes.

BUKKEN, an island on the W. coast of Norway, province of Christiansand. It has a small village of the same name. The Bukke or Bukken fiord, an arm of the sea 35 miles long, from 10 to 15 miles wide, and crowded with small islands, separates it from the island of Karmoe.

BUKKUR, a fortress of Sinde, Hindostan occupying nearly the whole of a rocky island

of the same name, in the Indus, opposite the towns of Boree on the E. and Sukkur on the W. bank of the river. Before the annexation of Sind, it belonged to the ameer of Kyrpoor, by whose permission it was garrisoned by the British in 1839, during the Afghan war. About that time the Bengal army on its march to Afghanistan crossed the river here on a bridge of boats, which was soon after swept away.—Also, a town in the Punjab, near the Indus, with an extensive commerce. Pop. about 5,000.

**BULACAN**, a town of Luzon, and capital of a province of the same name, in the Philippine islands, 20 miles N. W. of Manila. It is situated on the river Bulacan, which is here crossed by a bridge of 5 arches. Sugar, silks, and carpets are its chief manufactures. Pop. 9,803.

**BULAMA**, the easternmost of the Bissagos islands, off the W. coast of Africa, 20 miles S. of Bissao. Lat. 11° 34' N., long. 15° 38' W. It is about 18 miles long by 9 miles wide, densely wooded, fertile, but unhealthy. The land rises from the coast toward the centre, where the elevation is about 100 feet above the sea. In 1793 an English company, called the Bulama association, sent out here a colony of 275 miserable adventurers, most of whom were soon carried off by disease. The remnant sailed for Sierra Leone the following year. Portugal now claims the island, but in a recent parliamentary report on western Africa, its reoccupation by the British for commercial purposes and the suppression of the slave trade was earnestly recommended.

**BULABOHUS**, the earliest painter mentioned in history. He was of a Greek colony in Asia Minor, and lived more than 700 years B. C.

**BULB**, in botany, a broad imbricated bud, usually subterranean, emitting roots beneath, and developing the herbaceous stock and foliage upward. The leaves or scales with which it is clothed are thickened by the deposition of nutritive matter, stored for the future use of the plant. It differs from the tuber, which is the enlargement of a subterranean branch.

**BULGARIA**, a dependency of European Turkey. The Danube forms the whole of its northern, and the parallel chain of the Balkan in southern, boundary. It has an area of about 33,000 sq. m., and is divided into 8 eyalets, or provinces, viz.:

	Pop.	Christians.
Silistria.....	1,300,000	181,830
Widdin.....	1,100,000	594,355
Sistova.....	1,164,000	676,838

Total..... 3,464,000 with 1,454,508 Christians.

and the rest Mussulmans, Jews, Servians, Gypses, Greeks, Armenians, Tartars, and Russian settlers, Bosniaks and Wallachians, Germans, Italians, and Hungarians. Sophia (Bulgarian, *Triaditza*), in the eyalet of Widdin, Sistova, and Nicopoli are among the chief cities. The most strongly fortified towns are Varna, Silistria, Shoomla, and Roost-book. The principal rivers are the Danube, with its tributaries, the Iaker, Vid, Yantra,

and Oama, and the Kamtebik and Pravadi, which enter the Black sea. The river Maritza rises southward from the Balkan. The largest lake is that of Rassein, which is separated by a narrow strip of land from the St. George's mouth of the Danube, from which a little arm, called Dunavitz, enters the lake, the communication of the lake with the Black sea being formed by 2 channels, called the Jabora and the Portitoha mouths. The surface is mountainous in the south, level in the north, generally well wooded, and with dense forests along the Balkan range. Iron, lead, and some silver are found. Agriculture is more flourishing here than in any other part of Turkey. The largest quantities of grain are grown in Silistria, and in the plains near the Danube. The general exports of the country comprise, beside various kinds of grain, timber and oak planks, hemp, flax, tobacco, hides, honey, wax, and great quantities of tallow, 40,000 oxen or more being fattened during the summer months and slaughtered during the autumn for their hides and fat, beef being seldom eaten by the Mussulman, whose favorite food consists of mutton and goat's flesh. Large quantities of wine are made, and fruits are abundant. Roses abound, and gardens are laid out to cultivate them, Bulgarians excelling in the preparation of otto or attar of roses, much of which goes to England. The Tartar population is actively engaged in the rearing of horses (of an inferior breed), and in the culture of bees. Beside horses, horned cattle, and buffaloes, the country produces sheep and goats, also swine for the consumption of the Christian part of the population. Grain is occasionally shipped in lighters to Matchin, a small port opposite Brailoff, and thence exported to foreign ports, but the chief Bulgarian shipping port is Varna, in the eyalet of Silistria, which has an annual aggregate tonnage, inward and outward, of about 45,000 tons, in about 500 vessels. There is also a depot at Varna for tallow and other products. The most noted manufactures of the country are coarse woollen cloth, and rifle barrels. The rest are all of coarse goods. The imports are manufactured goods, coffee, spices, sugar, salt, &c. The town of Sistova carries on an extensive trade with Wallachia, and has a large commerce in manufactured goods imported from Austria. The agricultural production is estimated at \$17,000,000, the industrial at \$4,000,000.—Bulgaria was the *Masia Inferior* of the Romans, and derives its name from northern hordes who invaded the country in the 7th century. The history of the Bulgarians presents a series of continued conflicts with the Servians, Greeks, and Hungarians on the one hand, and on the other with the Turks, who finally subdued them, and put an end to the existence of a Bulgarian kingdom in 1892. The territory is of the first importance to the integrity of the Turkish empire, and to neutralize the Russian influence which operates powerfully

in Bulgaria, is a matter of great moment for the Turkish government. In 1853, during the Russian occupation of Moldavia and Wallachia, the line of fortresses along the left bank of the Danube and those in the Balkan range were guarded by a large Turkish army, divisions of which crossed the Danube opposite Oltenitza and Kalafat, and obtained some slight advantages over the Russians. The St. George's mouth of the Danube is by treaty open to all trading vessels, and to the war ships of Russia and Austria, and measures have lately been taken to facilitate the navigation, which is difficult. Various railways are projected; but that between Boghazkew and Kustendji, is the only line to which a charter has as yet been granted, and which, when completed, will be the first railway in operation in Turkey.

**BULGARIAN LANGUAGE AND LITERATURE.** Bulgaria and the adjacent provinces of Macedonia are considered to have been the cradle of the old Slavic languages. The ancient Bulgarian language was the richest of them all, and was the Scriptural language of the Greek-Slavic church, and the great medium of ecclesiastical literature in the ancient Slavic lands. After the overthrow of the Bulgarian kingdom at the close of the 14th century, the grammatical structure and purity of the language became impaired by mixture with the Wallachian, Albanian, Roumanian, Turco-Tartar, and perhaps Greek vernaculars; and the modern Bulgarian language has only the nominative and vocative of the 7 Slavic cases, all the rest being supplied by prepositions. It has an article, which is put after the word it qualifies, like that of the Albanians and Wallachians. Among the ancient Bulgarian ecclesiastical literature must be mentioned the translations of the Bible by Cyril and Methodius, and the writings of John of Bulgary in the 10th century. The modern literature is very slender, consisting almost entirely of a few elementary and religious books. Grammars of the Bulgarian language have been published by Neofyt in 1835, and by Christaki in the following year. Venelin, a young Russian scholar, sent to Bulgaria by the Russian archæographical commission, published in 1837 a grammar and 2 volumes of a history of the Bulgarians, but died while he was engaged in preparing a 3d volume. A new grammar was given to the public by Bogojev in 1845, and finally in 1849, by the Rev. E. Riggs, an American missionary stationed at Smyrna, who also sent a Bulgarian translation of Gallaudet's "Child's Book on the Soul" to New York. Dictionaries of the Bulgarian language have been prepared, or are in course of preparation, by Neofyt and Stojanowicz. A Bulgarian version of the New Testament was printed at Smyrna in 1840, for the British and foreign Bible society. The Bulgarian national songs are numerous, and are similar to those of the Servians. Czelakowsky's collection of Slavic songs contains a number of Bulgarian songs. Bogojev published 12 historical poems in 1845,

while a publication on the subject of education has appeared from the pen of Neofyt. Bulgarian publications are issued chiefly in Bucharest, Belgrade, Buda, Cracow, Constantinople, Smyrna, and Odessa. A paper, called the "Bulgarian Morning Star," has appeared at the latter city since 1848. The first number of a monthly magazine, entitled "Philology," was issued from the presses of Smyrna in 1844, and a Bulgarian almanac from the same press in 1856.

**BULGARIN, THADDEUS** (Polish *TADDEUSZ BULHARTN*), a Russian author, born in 1789, in Lithuania. His father fought under Kosciuszko, and after the fatal issue of the Polish war of independence, his mother removed to St. Petersburg, where Thaddeus was educated at the military academy. In 1805 he took a part in the war against France and Sweden, and subsequently left the Russian service, served in the Polish legion in Spain, was taken prisoner by the Prussians in 1814, served on recovering his liberty under Napoleon, and after the Emperor's downfall, occupied himself with literary pursuits in Warsaw. After some time he returned to St. Petersburg, and, throwing off his Polish nationality, he henceforth devoted himself to Russian literature. In 1823 he edited the "Northern Archives," originally a historical and statistical paper, but which he made popular in Russia by his humorous and satirical contributions. In 1825 he published in conjunction with his friend Gretsah the "Northern Bee," became also editor of the "Daguerreotype," and of the first Russian theatrical almanac, called the "Russian Thalia." His complete works, published at St. Petersburg, 1827, and at Leipsic, in German, in 1828, include many of his fugitive essays and his Spanish sketches, to which he added his Turkish sketches in a separate volume. In 1829 he made his debut as novelist with "Ivan Vuishigin," or the Russian "Gil Blas," of which "Peter Ivanovitch Vuishigin" is the continuation. Subsequently he published 8 works containing pictures of Russian life, "Rostavlev," "Demetris," and "Mazeppa," which have lost somewhat of their popularity in Russia, although from a Russian literary point of view they have many excellent points, especially the two last-named novels, from their historical character, and generally from the insight which they afford into Russian life. His Russian "Gil Blas" was published in English at Aberdeen in 1831, and his "Russia in a Historical, Statistical, Geographical, and Literary Point of View," one of his most valuable works, has been translated into German by Brackel. His literary labors proved profitable, and he lives in comfortable circumstances in a villa near Dorpat. His last work, *Vospominaniya*, of which 6 volumes have already appeared, contains interesting reminiscences of his stirring life. The czar and his family have always befriended him, and he writes with a strong bias in favor of Russia.

**BULKHEADS**, the partitions built up in

several parts of a ship, to form and separate the various apartments.

**BULKLEY, PETER**, first minister of Concord, Mass., born at Woodhill, Bedfordshire, in 1583. He was educated at Cambridge, and succeeded to the living of his father in Woodhill, which he retained for 21 years. He was removed from this by Archbishop Laud, for non-conformity to certain ceremonies of the church, whereupon he immediately left England for the new world. He settled with a few companions in a place first named by them Concord, in the colony of Massachusetts, since distinguished in New England history, where he died in 1659. He was the author of some Latin poems, which are contained in Cotton Mather's "History of New England," and also of the "Gospel Covenant Opened," published in London in 1646. He was as remarkable for his benevolence and kind dealings as for the strictness of his virtues.

**BULL, PAPAL** (Lat. *bulia*, a seal), one of the forms in which the pope issues his ordinances. It differs from a brief in that the latter is shorter and less solemn, though equally authoritative. Briefs are sealed with red wax, stamped with the fisher's ring. The seal of a bull is of lead or gold, stamped on one side with the effigies of Saints Peter and Paul, and on the other with the name of the reigning pope, and attached to the document by strings. The two acts differ also by the subscription, salutation, and apostolical benediction, which are simpler in the brief; and by the date, which is taken from the modern calendar for briefs, and from the Roman calendar for bulls. Bulls are commonly designated from the words with which they commence, as the bull *In cana Domini*, which was formerly read publicly at Rome on Holy Thursday, and contains a general excommunication against heretics and those contumacious and disobedient to the holy see. Its publication was suspended by Clement XIV. in 1778. Among the bulls most celebrated in history are the *Ulerio laico*, given in 1296, by Boniface VIII., and which began his contest with Philip the Fair; the *Execrabilis*, issued by Pius II. in 1460, to interdict appeals to future councils; the *Exsurgens Domine*, directed in 1520 by Leo X. against Luther, who burned it at Wittenberg; the *Omnes occasione*, by which Innocent X. condemned the 5 propositions of Jansenius, in 1653; the *Unigenitus*, issued by Clement XI. in 1713, against the "Moral Reflections" of Quesnel; the *Post diuturnas*, by which Pius VII. in 1800 established a new judiciary order in the states of the church; and the *Ineffabilis Deus*, by which Pius IX. in 1854 established the dogma of the immaculate conception.—**BULLS DUMMIES**, or **HALF BULLS**, are instruments of this character issued by the pope before his coronation, and so called from the fact that the lead or gold is stamped only on one side.

**BULL, GEORGE**, an English prelate, born at Wells, Somersetshire, March 25, 1684, died Feb. 17, 1710. Having graduated with distinc-

tion at Oxford, he was ordained at the early age of 21, and soon became rector of St. George's, near Bristol. Here he made himself beloved by all, and kept his parish in peace during those troublesome times. On one occasion, while he was preaching, a certain fanatic bawled out, "George, come down! thou art a hireling and a false prophet!" George did come down, but only to rescue this zealot from the fury of the congregation, who wished to resent on the spot the insult offered to their pastor. In 1658 he became rector of Suddington St. Mary, in Gloucester, and in 1662, of Suddington St. Peter. In 1669 he published in the Latin tongue his most important work, called *Harmonia Apostolica*. This is an attempt to reconcile the apparent contradictions between St. James and St. Paul, on the doctrine of justification. This publication extended his fame to foreign countries, and his reputation procured him a stall in the cathedral of Gloucester. In 1705 he was promoted to the bishopric of St. David's. He is reckoned among the great lights of the church of England.

**BULL, JOHN**, the popular name applied to Englishmen. It was first used by Dean Swift; others ascribe its origin to Dr. Arbuthnot's novel entitled "John Bull."

**BULL, JOHN**, an English musician, born in Somersetshire about 1568, died at Lübeck, in Germany, about 1623. In 1596, on the recommendation of the queen, he was appointed professor of music at Gresham college, which position he resigned in 1607 to become chamber musician to King James. He quitted England in 1618, and finally settled in Lübeck. As a performer on the organ, he was the most able musician of his age. Having once performed before King James a song which he called "God save the King," the present national anthem of England has been erroneously attributed to him.

**BULL, OLE BORRHEMANN**, a Norwegian violinist, born at Bergen, Feb. 5, 1810. His father, a chemist, who had destined him for the church, steadily repressed his son's passion for music. At the age of 18 he was placed at the university of Christiania. His skill on the violin gained him no favor with the professors; and when he took the temporary charge of the orchestra at one of the theatres, during the illness of the leader, his connection with the university was dissolved forever. In 1829 he went to Cassel to study with Spohr, but his reception was so chilling, that in a moment of despondency he went to Göttingen and commenced the study of the law. His fondness for his art, however, soon interrupted this pursuit, and he went to Minden, where he gave a concert with considerable success. While at this place he had a quarrel with a fellow-artist, which resulted in a challenge. The parties met, and Ole Bull's antagonist was mortally wounded. Compelled to leave the country, he betook himself to Paris, where he arrived poor and unknown, and for some time



led a precarious and most wretched existence. Moreover, he was robbed of every thing he possessed, including his violin, and in despair he threw himself into the Seine, from which he was rescued. A bereaved mother, who traced in his features a remarkable resemblance to her dead son, took him into her house, and assisted him so liberally that he was enabled to make his first appearance in public as a violinist. The public were charmed by the performance, and the proceeds of his first concert enabled him to make a musical tour through Italy. The next 7 years were spent in frequent professional tours through Italy, France, Germany, England, and Russia, by which he acquired a handsome fortune. Returning to his native place in 1838 with his wife, a Parisian woman, he settled upon an estate which he had purchased in the neighborhood. At the end of 5 years he came to the United States, and experienced an enthusiastic reception; and after a career of great pecuniary success, he returned to Europe in 1845. During the next 7 years, he gave concerts in the chief cities of the continent, made a campaign in Algeria against the Kabyles with Gen. Yusuf, made improvements in musical instruments, built a theatre in Bergen, and endeavored to establish in Norway national schools of literature and art. Influenced by patriotic feelings, he introduced political sentiments into the dramas performed at his theatre, and was brought into collision with the police. Vexatious lawsuits, resulting from these troubles, dissipated a large portion of his fortune; his wife sank under the rigors of the climate; and the artist once more left his country for the new world, where he arrived in 1852. In that year he purchased a large tract of uncultivated land, comprising 120,000 acres, situated in Potter co. in the northern part of Pennsylvania. A large number of families, to whom the lands were sold at a nominal price, gathered upon the spot, forming the germ of an extensive agricultural colony, to which the name Oleana was given, in honor of the founder. For a time the new settlement was favored by bright prospects; but dissensions soon crept in; pecuniary embarrassments followed; and at length the project was entirely abandoned and the colony broken up. To repair his shattered fortunes, Ole Bull resumed his concerts, and after the completion of the academy of music in New York, in 1854, took a lease of the building with the intention of undertaking the management of the Italian opera. The enterprise proved disastrous, and at the end of 2 months he found himself involved in a number of lawsuits resulting from it, beside having experienced heavy pecuniary losses. He has since returned to Europe, and is now (1858) engaged in giving concerts in Vienna and other cities.

BULL, WILLIAM, an American physician, and lieutenant-governor of the colony of South Carolina, of which province he was a native, born in 1710, died in London in 1791. He received at Leyden a medical degree, the first, or

one of the first, ever obtained by a native of America. With some short intervals he was lieutenant-governor of South Carolina from 1764 till that province ceased to be subject to Great Britain. He was faithful to the crown in 1776, and in 1782 accompanied the British troops to England, where he resided during the remainder of his life.

BULL-BAITING, a barbarous and brutal exhibition, common in England from a very early period till the commencement of the reign of George IV., when it was prohibited by act of parliament. The bull was secured to a post by a chain fastened through a ring in his nose, allowing him to move in a circle, but preventing him from gaining his liberty, which would have been dangerous to spectators, when bull-dogs were let loose to run at him, which, rushing always at the head, either pinned the bull by the nose or lip, or were tossed in the air, gored and trampled. The excitement consisted in witnessing the courage of the dogs in the attack and of the bull in defence; but there was no fairness in the contest, as the more powerful animal, chained to the stake, had neither the opportunity to decline the contest, nor to exert his powers, and terminate it by defeating his enemies.

BULL-DOG (*canis molossus*), a species of dog, said to be peculiar to the British islands, and distinguished almost solely for its indiscriminating ferocity. The dog, generally, by naturalists, is distinguished into 8 divisions, to one of which all natural species belong, while to a combination of 2 or more all the artificial varieties are to be referred. These are the *canes sagaces*, *veloces*, and *feroces*, distinguished respectively for their intelligence, their speed, and their ferocity. The first or highest is represented by the spaniel, to which belong all the pure species which hunt by scent; the middle, by the greyhound, or, more properly, *gashound*, to which are referred all those which hunt mainly or solely by speed; and the lowest, by the bull-dog, of which pugnacity is the sole characteristic. The bull-dog is low in stature, deep-chested, and strongly made about the shoulders, which, with the chest and neck, are enormously developed, as are also the muscles of the thighs behind, although, generally, the hind quarters are light as compared to the fore part, and the flanks hollow and tucked up, like those of the greyhound. In his head, however, are seated his principal peculiarities. It is remarkable for its short broad muzzle, and the projection of its lower jaw, which causes the lower front teeth to protrude beyond those of the upper. The condyle of the jaw are placed above the line of the upper grinding teeth; and it is this conformation which renders the bite of the bull-dog so terribly severe, and his hold, when once taken, almost immovable. The lips are thick, deep, and pendulous; the ears fine, small, and pendant at the tip; the tail thick at the root, but tapering to a point, as fine as that of the greyhound. "He is the most ferocious and un

relenting of the canine tribe, and may be considered courageous beyond every other creature in the world; for he will attack any animal, whatever be his magnitude, without hesitation, either at his own caprice, or at the bidding of his owner. His most important quality, and that, probably, which causes all the others, although we cannot perceive the connection, is the diminution of the brain; which, in the bull-dog, is smaller and less developed than in any other of the race; and it is, doubtless, to the decrease of the encephalon that must be attributed his want of intelligence, and incapacity for receiving education." So strongly marked is this peculiarity, that an able recent writer on the dog considers the bull-dog as a sort of abnormal canine monster, a dog idiot, yielding to uncontrollable physical impulses, now of blind ferocity, now of equally blind and indiscriminating, mandolin tenderness, which renders him more addicted to licking, slobbering, and mumbling the hand, the boot, or any other part of any person to whom he takes a sudden and causeless liking, and whom he is just as likely to assault the next moment, than any other of his species. This view is, however, scarcely to be regarded as philosophical. All creatures have their places in the scale of creation; and, without any one of them, the chain of existence, and it may be added of intelligence, would be incomplete. It is probable, also, that the intelligence and capacity of this animal to learn are underrated. Men are very apt, because they bestow much pains on the education of one animal, and none on that of another, to pronounce this a wonder of intelligence, that incapable of learning. It cannot, however, be denied that the bull-dog does not display the usual intelligence nor the fidelity of the dog; since he will capriciously attack his master, of whom he may, ordinarily, be morbidly fond. A proof of his distinct purpose in creation is his native antipathy to the bull; which is not akin to the propensity of all animals, particularly of all dogs, to pursue any thing which flies, but to the instinctive antipathy which induces the ichneumon to attack the venomous snake, the kitten to assail the mouse, and the ferret to hunt the rat—antipathies not connected with the desire of prey, and owned by the one party as intensely as by the other. In proof of this, a thoroughbred bull-pup, of 6 months, which has never seen a bull, the first time he beholds one, will run at the head, which is his invariable point of attack, and, seizing him by the lip, tongue, or eye, hang on, in spite of every attempt to detach him, and will suffer himself to be killed or even dismembered—instances of which horrible barbarity have actually occurred in what are absurdly called the good old times—rather than forego his hold. It is clear, indeed, that bull-baiting was the consequence of this natural hatred and antagonism of the 2 animals, not the cause of it. It was an old saying that 1 bull-dog was a match for a bull, 2 for a wolf, 3 for a bear, and 4 for a lion. The latter experiment was tried on a wild,

newly imported African lion, in the tower of London, some years since; when, although not one of the dogs showed a symptom of fear, or relaxed his hold, the lion annihilated them all, with blows of his paws, in a few seconds. The very propensity of the bull-dog to run at the head only, renders them useless to attack wild beasts; as it limits the number of those which can attack at once to as many as can seize at one time. If they would only lay hold on all sides, like foxhounds, nothing but a rhinoceros could resist the combined attack of a pack of bull-dogs. With the decline of bull-baiting, the demand for the bull-dog has ceased; although he is still found useful to cross with other dogs, to which he imparts courage, endurance, and tenacity of purpose. There is a large cross of the bull-dog, where it would be least expected, in the greyhound, introduced by Lord Orford, to give certain valuable qualities; and the greyhound shows it by his always running at the head of large animals, as the deer. There is, also, a probable cross in the pointer, shown in the pendulous jaw and rat tail, as well as in the determined character.

BULL-FIGHT, a Spanish spectacle, introduced by the Moors originally, and universally adopted in all the cities of the kingdom, each of which has an arena of greater or less magnificence, called the *plaza de toros*, set apart for this entertainment. The bulls are turned out, one by one, with many forms of pomp and solemn ceremonial, into the open space; where they are assailed, first by horsemen, called *pica-dores*, who attack them with the lance; then, when a dozen or more horses have been ripped up, and one or two men have narrowly escaped a similar fate—for the riders are rarely injured, since, the moment they are overthrown, a crowd of active footmen, called *chulos*, provided with crimson banners, take off the attention of the bull—they are tormented by the *banderilleros*, armed with sharp-barbed darts having fireworks and flags attached to them, until they are thickly covered with shafts, bleeding at every pore, and scorched till their glossy hides are black and crisp by the explosions of the fireworks. Then comes the last act of the tragedy, when the skilful *matador* enters the arena slowly and alone, habited in unadorned black, and armed only with a long straight sword, with which he soon gives the *coup de grace* to the tortured brute, sheathing the blade, with one sure thrust, up to the hilt in his body just at the juncture of the neck and spine. A train of mules drag out the slaughtered carcass, amid the sound of trumpets and the acclamations of the spectators; the dead or dying horses are removed; the arena is strewn with fresh sawdust; another bull is introduced; and so goes on the Spanish holiday, until perhaps 30 bulls and double that number of horses have been slaughtered to delight the populace, with whom the cry, almost identical with the *panem et circenses* of the Roman mob, is still for *pan y toros*.

**BULLA** (Lat. *bulla*, a bubble), the name of a genus of shells, the form of which is globose like a bubble. They are not furnished with any projecting spire. The animal which inhabits the shell is too large to be contained within it, so that the whole shell is frequently concealed beneath the fleshy covering. The bullas are all furnished with a gizzard for masticating and digesting their food. This consists of 8 rough and prominent pieces of shell, connected by a cartilaginous ligament by which they are moved. By this apparatus hard substances, such as small shells, are ground and converted into food.

**BULLARD, ARTEMAS, D. D.**, an American clergyman, born at Northbridge, Mass., June 3, 1802, died Nov. 1855. He was graduated at Amherst, in 1826, studied theology at Andover, and visited the western states as agent of the Sabbath-school society. In 1832 he was appointed general agent of the board of commissioners for foreign missions, and took up his residence at Cincinnati, making excursions over the Mississippi valley. He was installed pastor over the first Presbyterian church of St. Louis, Mo., June 27, 1838, and was one of those who perished at the railroad accident in crossing the Gasconade river in 1855.

**BULLARD, HENRY ADAMS**, a lawyer of Louisiana, born at Groton, Mass., Sept. 9, 1788, died in New Orleans, April 17, 1851. He graduated at Harvard college in 1807, studied law, and also many modern languages. Through his knowledge of the Spanish he became acquainted, while at Philadelphia, with Gen. Toledo, and embarked with him, as his military secretary, in an expedition to revolutionize New Mexico. Upon its failure he contrived to escape, and opened a law office at Natchitoches. He succeeded in the profession, and in 1822 was appointed one of the judges of the district court. In 1831 he was sent to congress, in 1834 became judge of the supreme court, and in 1846 removed to New Orleans, and entered upon a large legal practice. He was made professor of civil law in the law school of Louisiana in 1847, and delivered 2 courses of lectures. He reentered congress after an absence of 16 years, and died soon after his return home.

**BULLER, CHARLES**, an English politician, born at Calcutta, Aug. 1806, died in London, Nov. 23, 1848. He was educated in England, graduated at Cambridge as B. A. in 1826, entered parliament for West Looe in 1830, and in the following year was admitted a barrister at Lincoln's Inn. He voted for the reform bill, which disfranchised West Looe, and in 1832 was sent to the house of commons for Liskeard, in Cornwall, which he continued to represent till his death in 1848, distinguishing himself by his support of liberal measures and by his readiness as a debater. In 1838 and 1839 he officiated as secretary of the earl of Durham, governor-general of Canada. On his return to England he was devoted to the practice of his profession, chiefly in connection with cases relating to Indian affairs. In 1841 he became secretary of

the board of control; in 1846, judge-advocate general; in November of the same year, queen's counsel; and in July, 1847, a member of the privy council. In Nov. 1847, he was made president of the poor-law board, but his promising career, which pointed to him as one of the future great statesmen of England, was cut short by death a year afterward. His skill in the treatment of public questions was made evident in his writings, most of which appeared in the journals of London and the leading periodicals of the country.—**SIR FRANCIS**, an English judge, born in 1745, died June 4, 1804. He acquired some reputation by his publication relative to trials *in nisi prius*, which is considered a standard work, and has passed through many editions.

**BULLET, or BALL**, a round piece of lead or iron, used to load a musket or cannon. From the invention of gunpowder to the beginning of this century bullets were made spherical. The best material to make bullets is the heaviest; lead is used for musket bullets, but this substance is too dear and too scarce for cannon balls, and cast-iron, though much lighter, is generally used. Balls are made by casting; this process leaves a rough surface. This is unimportant in lead bullets, as the metal is soft and gives way; but in cast-iron balls it is a cause of weakness for the cannon, and means are employed to give more finish to the surface. Numerous persons during the last fifty years have experimented on the form of bullets without marked success till Captain Minié, of the French army, succeeded in introducing his cylindro-conical bullets. The desiderata of bullets are: 1st, that they fill exactly the bore of the gun; 2d, that when projected, they proceed with a retary motion; 3d, that they be shaped so as to encounter the least resistance from the air; 4th, that the whole of the bullet, or at least the forward part, be of solid substance to cut through obstacles. The Minié bullet is for rifles, and is made of lead; the shape is that of a cylinder of nearly the diameter of the rifle, one end of which comes to a point in a conical shape, and in the other end curved recess is left. The effect of powder, when firing, is to expand the thin portion of lead around the recess, and to make it fit tightly in the grooves of the rifle. Lead bullets have been made with a steel point. The expansion of lead to make the bullet fit has been produced by inserting in the end of the bullet a cone of iron, which was forced in by the expansion of powder, at the first instant, before the inertia of the bullet had been overcome. The best cannon ball was patented in 1858, in the United States, by S. M. Sigourney; it is a cast of the shape of Minié's bullet without the recess at one end; it is a cone and a cylinder on a common basis; the cylinder is smaller than the bore of the cannon, except at the top and bottom, where rims are left projecting a quarter of an inch; between these rims there are, on the body of the cylinder, three ribs, shaped like the grooves in the bore, projecting sufficiently

to fill these grooves. After being cast, the ball is placed on a lathe, where the rims are turned to the exact diameter of the bore, and where a peculiarly made planing tool cuts the ribs to the proper shape and angle to correspond with the grooves. This ball, placed in the gun, fits perfectly, and only the turned and planed portions of its surface are in contact with the cannon. It has been lately discovered that the rotation of a bullet combined with the force of gravity produces a motion sidewise; this fact is as yet but little known, but will at some future time be the occasion of improvements. The best form of a bullet is identical with the best form of a vessel, both being bodies cutting their way through fluids the resistances of which obey the same physical law. The best known shape for the bows of a vessel is that of clippers, that is, a concave curve. It has been also found that the shape of the stern has much to do with the velocity of a ship. It seems that those who devise bullets have not made these remarks, and that there is yet room for improvements. Various machines have been contrived for producing bullets from the bars of lead; some by casting them in moulds, and others by forcing the bits of lead into dies, and by compression giving to them their form. One of these machines, recently invented by Mr. Wm. H. Ward, of Auburn, N. Y., cuts the pieces for the bullets from lead-wire of suitable size regularly fed to it, and compresses them into any sort of bullet, for musket, pistol, or rifle, that is required. Eight bullets are produced by every revolution of the machine; and this is capable of being worked up to 25 turns in a minute. The bullet adopted for the U. S. "rifle musket," which is to supersede the old gun musket, is an elongated, hollow, pointed ball, weighing 497 grains.

**BULLETIN** (It. *bulletino*), a word derived immediately from the French, and the diminutive of the low Latin *bulia*. In the French army, the public despatches of the general are called bulletins. Many learned societies call their transactions bulletins, among others the St. Petersburg and Belgian academies, and the archaeological institute of Rome. The authorized collections of the laws and ordinances of the French government were once called *bulletin des lois*. The tickets on which the elector inscribes his vote are termed in France *bulletins*.

**BULLFINCH** (*pyrrhula rubicilla*, Pall.), a bird of the finch family, a native of northern and temperate Europe. The bill is remarkably short and thick, of a black color, and convex in all its outlines; the head is large, the neck short, and the body stout. The length of the male bird is 6 inches, the extent of wings 10 inches, the bill about one-third of an inch. The plumage is soft; around the base of the bill the feathers are bristly, concealing the nostrils; the third quill of the wing is the longest; the tail nearly straight, consisting of twelve broad rounded feathers. The eyes are

dark brown, the feet dusky, the claws brownish black. The upper part of the head and a band at the base of the lower jaw are glossy bluish black; the hind neck, back, and scapulars ashy gray; the rump and lower tail coverts white; the upper coverts and tail bluish black; the quills and primary coverts are brownish black, the outer webs of the secondaries being glossed with blue; the secondary coverts are tipped with gray or grayish white, forming a bar on the wing; the cheeks, front of the neck, breast and sides are light crimson; the belly grayish white. This is the ordinary male plumage, which in captivity becomes sometimes very dusky. The female is a little smaller; the coloring is similar, but the tints are much duller; the parts which are red in the male are dull grayish brown in the female. The bullfinch is fond of wooded and cultivated districts, avoiding barren tracts near the sea and bleak islands; it is gregarious, but seldom associates with other birds; it is not migratory, but frequents the woods and thickets of England during the whole year. Its flight is quick and undulating; its notes are soft, low, plaintive, and mellow; it is often caged for its beauty, and in captivity becomes very docile, and may be taught a variety of tunes. During the greater part of the year it lives in the thickets and woods, occasionally visiting the fields in search of seeds. In the spring it is very destructive to the buds of the gooseberry, cherry, plum, and other fruit trees. It begins to build its nest in the beginning of May, of small, dry twigs and fibrous roots, generally in a thorn bush, thick hedge, or bushy spruce; the eggs, 4 or 5 in number, are of bluish or purplish white color, speckled and streaked with purple and reddish brown. The young at first resemble the female, but without the black on the head; the male does not acquire the full red tint until the second year.

**BULLHEAD**, the popular name of several species of cottoid fishes, principally of the genera *cottus* and *acanthocottus*, inhabiting both fresh and salt water. All were formerly confounded in the genus *cottus*, but Mr. O. Girard ("Smithsonian Contributions to Knowledge," vol. iii.) has separated them, restricting the genus *cottus* to the fresh-water species, while he gave the name *acanthocottus* to the marine species, more commonly called sculpins. These two groups are distinguished very easily: the head of the former is smooth or nearly so, that of the other is tuberculous or armed with spines; the former is not found in salt water, nor the latter in fresh, though it is sometimes found in the brackish water of the mouths of rivers. For the minute characters of the genera and species, the reader is referred to the work above alluded to, and to the "Proceedings of the Boston Society of Natural History," vol. iii., p. 188. The most obvious characters are the following: In *acanthocottus*, the opercular apparatus is armed with strong spines; the surface of the head, and often the circumfer-

ence of the orbits, is similarly armed, or is serrated in various ways; the nasal bones are in some species surmounted by a ridge or spine; the head is high and broad, occasionally deformed, with very large eyes and an immense mouth; the body is without scales, the back often arched, and the first dorsal almost as high as the second; the soft rays are 8 or 4 in the ventral fins; the lateral line runs uninterrupted and distinct from the head to the base of the tail; in the cottoids, the lateral line is remarkably developed, being in some a regular cartilaginous tube with a series of openings communicating by pores of the skin with the surrounding water, leaving no doubt that this line in fishes is intended to supply water to the system. The common bullhead or sculpin (*A. Virginianus*, Willoughby) is well known to every boy as a perfect pest and scarecrow among fishes. The body is of a light or greenish brown above, with irregular blotches arranged as 4 transverse dark brown bars; the abdomen is white, occasionally stained with fuliginous; the dorsals are crossed by dark brown bands, the pectorals light yellow with concentric brown bands, and the ventrals, anal, and caudal yellowish white, also banded. The length is from 10 to 18 inches, of which the head is about one-third. There are 10 naked spines on each side, on and about the head, the largest being at the posterior angle of the preoperculum, and partially covered with a loose membranous sheath; there are also strong scapular and humeral spines, so that it is rather a difficult species to handle; the gape of the mouth is large, and the jaws, pharynx, and palate are armed with numerous sharp, card-like teeth; the caudal fin is even at the end. This species is found from New Brunswick to Virginia. Another species of the New England coast is the Greenland bullhead (*A. variabilis*, Gd., and *A. Groenlandicus*, Cuv.); these may be different species, but they are described under one head by Dr. Storer, in his "Fishes of Massachusetts," in "Memoirs of the American Academy," vol. v. p. 74. This is darker colored than the common sculpin, with large clay-colored blotches on the top of the head and gill covers, smaller ones on the back and sides, and circular yellow spots on the sides near the abdomen, which is yellow tinged with red, and the throat dull white; the fins are more or less banded and spotted with yellow; the sides are rough from granulated tubercles. The length is about a foot, of which the head is one-fourth; this is armed with spines. These ill-flavored sculpins are the favorite food of the Greenlanders, though rarely, if ever, eaten by us. They are very troublesome in the fishing grounds of the British provinces, and often compel the vessels to remove to another place, as experience proves that their presence drives away all desirable fish. The bullheads are very voracious, devouring small fish, crabs, echinoderms, mollusks, and almost every thing, even decaying matter that comes in the way. There

are several other American species described by Mr. Girard. The genus *cottus* (Artedi.) has but one small spine at the angle of the preoperculum, and sometimes another smaller, hidden under the skin, and perceptible only to the touch, at the lower margin of the suboperculum; the head is depressed, truncated in front, and broader than high; mouth less deeply cleft than in *acanthocottus*, but, like that, having teeth on the intermaxillaries, lower maxillaries, and front of the vomer; body smooth, gradually tapering to the tail; second dorsal higher than the first, ventrals with 8 or 4 soft rays; lateral line generally interrupted. The river bullhead (*C. gracilis*, Heckel.) rarely exceeds 8 inches in length, and is of a light green color, with irregular dark brown blotches, largest posteriorly; it is found in the New England states and New York. The *C. viscosus* (Hald.) is about 4 inches long, and inhabits eastern Pennsylvania and Maryland; the color is yellowish, clouded with black, the first dorsal fin being edged with a narrow line of orange; it receives its name from the uncommon sliminess of the skin; it delights in clear spring waters with pebbly bottoms, and lies concealed under stones and stumps, close to the bottom, and, when disturbed, hastens to a fresh cover; the eggs are laid in April and May, in round packets about the size of an ounce bullet, under boards and stones; it is supposed that they are watched by the parent, from her having been found under the same cover. Many other species, all small, are described by Mr. Girard as American; others are found in the colder portions of the temperate zone in Europe and Asia, at least 6; it is probable that many have been confounded under *C. gobio* (Linn.). The family of cottoids appeared on the earth some time during the last period of the cretaceous epoch, the genus *cottus* appearing in the tertiary. There is a cottoid in the Columbia river, called the prickly bullhead, for which Mr. Girard has established the genus *cottopsis*, resembling the marine species in its size, but the fresh-water species in its smooth head; the body is beset with prickles, there is one preopercular spine on each side, and the teeth of the palatine bones are card-like; its length is from 9 to 10 inches; it is the *C. asper* (Gd.). The name of bullhead is also given to some species of *aspidophorus* (Lacép.), and *hemitripterus* (Cuv.), marine genera, extending from the New England coast to the Greenland seas.

BULLINGER, HENRICH, a Swiss Protestant theologian, born at Bremgarten, July 18, 1804, died in Zürich, Sept. 17, 1875. He associated himself with Zwingli, and became his successor as pastor at Zürich in 1881. He took an active part in the theological discussions of the time, was one of the authors of the first Helvetic confession in 1836, and was sole author of the second Helvetic confession. He was the principal cause of the close relations established in the reign of Edward

VI. between the Anglican and the Swiss churches.

**BULLITT**, a northern county of Kentucky, with an area of 250 sq. m. It is watered by Salt river, and the Rolling Fork of that river touches its S. W. boundary. The surface is hilly and the soil fertile. Pine woods abound, and there are numerous mines of superior iron ore. The productions in 1850 were 418,580 bushels of Indian corn, 82,298 of oats, 2,990 lbs. of tobacco, and 13,146 of wool. There were 25 corn and flour mills, 10 saw mills, 4 tanneries, 3 iron furnaces, several woollen factories, 10 churches, and 150 pupils attending public schools. Value of real estate in 1855, \$1,443,198. The county is traversed by a railway designed to connect Louisville (Ky.) with Nashville. Pop. in 1850, 6,794, of whom 1,865 were slaves. Capital, Shepherdsville.

**BULLOCK**, an eastern county of Georgia, lying between the Ogeechee and Cannouchee rivers, and covering an area of 900 sq. m. The climate is healthy, the surface is generally level, but the soil is poor and sandy. Cotton, rice, sugar, and corn are the chief productions. The pine forests which cover a large portion of the county abound in game. Capital, Statesborough. The productions in 1850 were 112,475 lbs. of rice, 60,610 bushels of sweet potatoes, 98,612 of Indian corn, and 2,237 of oats. There were 12 grist mills, 2 saw mills, 10 churches, and 253 pupils attending public schools. Value of real estate in 1856, \$596,839. Pop. in 1855, 4,541, of whom 1,606 were slaves.

**BULLS**, in stock-exchange parlance, see **BEARS** and **BULLS**.

**BULMER, WILLIAM**, an English printer, born at Newcastle-upon-Tyne, in 1746, died at Clapham, Sept. 1830. He labored for some time with John Bell, in London, who published some fine miniature editions of the British poets. He was subsequently put at the head of Nicol's establishment for the printing of a magnificent edition of Shakespeare, the first numbers of which appeared in 1791.

**BULOLA**, a river of Senegambia, western Africa. It passes through the country of the Biaferes and empties into the Atlantic. On a small tributary of this river, 60 miles distant from the sea, stands the town of Bulola.

**BULOW, FRIEDRICH WILHELM**, Count von Dennywitz, a Prussian general, born Feb. 16, 1735, died Feb. 25, 1816. At the earliest period of Napoleon's European wars, he was engaged against him. In 1808 he was made a general of brigade. In 1813 he was ennobled for his victories at Möckern, Luckau, Gros-Beeren, and Dennewitz. He subsequently distinguished himself in Westphalia, Holland, and Belgium, and contributed essentially (as Wellington warmly acknowledged) to the victorious close of the battle of Waterloo, in which he commanded the 4th division of the allied army.—**HENNINGSEN**, baron, a Prussian diplomatist, born at Schwerin in 1790, died in Berlin, Feb. 6, 1846. While a student at Heidelberg, in 1818, he was called home to take

part in defending his country from the French. After serving in various engagements under Count Walmoden, he returned to Heidelberg, to complete his studies. Through the joint influence of Prince Hardenberg and Wilhelm von Humboldt (whose daughter he afterward married), he was allowed to enter the diplomatic service of Prussia. From 1826 to 1841 he officiated as Prussian ambassador in England, and took an important part in the conventions of 1830 and 1840 on the French, Belgian, and Oriental questions. From 1841 to April, 1842, he acted as Prussian ambassador to the German diet in Frankfort, and from the latter period to 1845 as minister of foreign affairs in Berlin.

**BULRUSH** (*scirpus lacustris*, Linn.), an aquatic plant, with a large cylindrical stem from 8 to 8 feet high, the sheath often bearing a small, linear, awl-shaped leaf, and the culm tipped with an erect and pointed involucre leaf. It has numerous spikes in a compound umbel-like panicle, and ovate, sword-shaped scales. It is a native of Europe, and is now common in rivers and ponds on the continent, in England, North America, and New South Wales. The root was formerly used in medicine for its astringent and diuretic qualities. The leaves and stem are tough and fibrous, and are employed for thatching, and making matting and chair-bottoms.

**BULSAR**, or **BULSAUR**, a thriving town in British India, district of Surat, presidency of Bombay. Many of the inhabitants are weavers and sailors; others are engaged in agriculture. Cloths are manufactured here, and an active trade is carried on in grain, timber, sugar, and salt. The estuary of the river Bulsar, on which the town is situated, is obstructed by a bar. Pop. 7,000.

**BULTI**, or **BULTISTAN**, or **LITTLE THIBET** (Iskardoh), a state of central Asia, tributary to the rulers of Cashmere, in the north-western part of the mountainous curve of the Himalayas, forming the north-eastern boundary of Hindostan. It is on the N. slope of the chain, and in the valley of the Indus. It is the N. W. part of the little division laid down on our present maps as central Thibet (Ladakh). It is a table-land, 6,000 feet above sea level, and the surrounding peaks rise 7,000 feet higher. The climate is therefore cold, though European fruits abound. The inhabitants are Tartars, and their religion Mohammedan. The land was subdued by Gholab Singh in 1846. Until then it was an independent state, the last independent ruler having been Ahmed Shah. The area is estimated at about 12,000 sq. m. and the population at about 75,000. The capital is Iskardoh.

**BULUBGURH**, or **BALLAMGARH**, the principal town in the jaghire of Bulubgurh or Furreedabad, under the lieutenant-gov. of the North-West Provinces, Hindostan. The jaghire, which is governed by a rajah of the Jaut tribe, extends for 26 miles along the right bank of the Jumna, and is bounded N. W. by Delhi; E. and N. E.

by Boolundahaur; S. and S. W. by Goorgaon. Area, 190 sq. m.; pop. about 57,000. At one period (about 1830), during the minority of the hereditary chief, the tract was taken under British management, but was restored to the rajah on his coming of age, and its relations to the British are now but imperfectly understood. The annual revenue of the state is estimated at 160,000 rupees, and the annual expenditure at 130,000. The military force consists of 100 cavalry and 350 infantry. The town of Bulubgurb, situated on the road from Delhi to Muttra, 29 miles S. of the former city, in a pleasant, well-cultivated country, is tolerably well built, but small. The streets are narrow, the houses tall, and the temples numerous. The palace of the rajah is a neat edifice.

BULWER, SIR HENRY LYTTON EARLE, an English diplomatist, born in 1804, is an elder brother of Sir Edward Bulwer Lytton. He was educated for public life, and, in 1827, was attached to the British embassy at Berlin, and in 1829 to the embassy at Vienna. He was sent to Brussels in 1830, to watch the progress of the Belgian revolution. In the same year he was returned to Parliament for the borough of Wilton, and in 1831 for Coventry. In 1832 he was attached to the British embassy at Paris; represented the metropolitan borough of Marylebone from 1834 to 1837; was made secretary of legation at Brussels in 1834, and subsequently filled the same office at Constantinople and Paris. He remained at the latter place until 1843, when he was sent to Madrid as envoy extraordinary and minister plenipotentiary, where he negotiated the peace between Spain and Morocco in 1844. During the disturbances in Spain in 1848, he was the medium, more than once, of conveying to Gen. Narvaez the remonstrances of the British government on the arbitrary system he was pursuing. Narvaez, who knew his sympathy to be with the liberals, accused him of complicity in certain plots said to be formed against the Spanish government, sent him his passport, and insisted on his quitting Spain. The British government marked their sense of this treatment by naming Mr. Bulwer a knight of the bath; by dismissing Señor Isturitz, the Spanish ambassador in London; and by withholding the appointment of an ambassador to Madrid for nearly 2 years, when Lord Howden was appointed. It is said that Narvaez eventually made an apology, the terms of which were dictated by Lord Palmerston. In 1848, Sir Henry Bulwer married the youngest daughter (born in 1817) of the first Lord Cowley, and niece to the duke of Wellington. In April, 1849, he was sent as ambassador to the United States, and in that capacity negotiated the Clayton-Bulwer treaty. He was transferred to Tuscany in 1852, as envoy extraordinary, and held that appointment until January, 1856. He was subsequently sent on a special mission to the East, and in 1858 was appointed ambassador at Constantinople.—Sir Henry Bulwer, in parliament, was a frequent and fluent speaker,

and has always held liberal opinions. He is an author as well as a politician, having published "An Autumn in Greece;" "France, Social and Literary;" "The Monarchy of the Middle Classes," and a "Life of Lord Byron," prefixed to a Paris edition of the poems.

BULWER, JOHN, an English physician, born 1596, died in the first part of the 17th century, who devoted his life to the humane employment of discovering and applying means of instructing the deaf and dumb. His first works on the art of speaking on the fingers (*Chironomia* and *Chirologia*) appeared in 1644.

BULWER, ROSINA (LADY BULWER LYTTON), born in Ireland in 1807, married to Sir Edward (then Mr.) Bulwer, Aug. 29, 1827. She was granddaughter of Hugh, 2d Lord Massy, of Duntryleague, co. of Limerick, Ireland, and only surviving daughter of Mr. Francis Wheeler, of Lizard Connell, in the same place. After living with her husband for several years, a separation took place. Lady Bulwer Lytton, who had decided literary tastes, occasionally contributed to magazines during the first years of her wedded life. A classical sketch, in prose, entitled "The Supper of Sallust," appeared in an early volume of "Fraser's Magazine." In 1839 was published her first novel, "Cheveley, or the Man of Honor," to which have succeeded "The Budget of the Bubble Family;" "Bianca Capello," an Italian story; "Memoirs of a Muscovite," a tale of modern Italian life; "The Peer's Daughters," illustrative of the age of Louis XV.; "Behind the Scenes;" "The School for Husbands, or the Life and Times of Molière," and "Very Successful." A new novel from her pen appeared in 1858. Its title is, "The World and his Wife; or, a Person of Consequence." Five of these works are vehicles, under a very thin guise of fiction, for satire and abuse of the author's husband, and his mother and brother. A pamphlet, circulated during the parliamentary session of 1857, sets forth, more plainly and particularly, the grounds, real or assumed, of Lady Bulwer Lytton's quarrel with and separation from her husband. On June 18, 1858, she created not a little excitement at Hertford, by making her appearance at the hustings, for the purpose of confronting her husband, who was addressing his constituents. Her historical novels, though overloaded with quotations in various languages, dead as well as living, show considerable acquaintance with the lives and characters of eminent personages, as well as of the countries in which they lived. Two children were the fruit of Lady Bulwer Lytton's marriage. One of these, a daughter, died in youth. The other, EDWARD ROBERT, born in 1831, heir to his father's title and estates, was attached to the British embassy at Washington (under his uncle, Sir Henry Bulwer), in 1849; was transferred to Florence in 1853; and in 1856, under the *nom de plume* of Owen Meredith, published a volume entitled "Clytemnestra, the Earl's Daughter, and other Poems."

**BULWER LYTTON, SIR EDWARD GEORGE EARLE LYTTON**, an English novelist and politician, born at Haydon hall, in the county of Norfolk, in 1805. He is the 8d and youngest son of the late Gen. William Earle Bulwer. His mother was heiress of the Lyttons of Knebworth, Hertfordshire. She had strong literary tastes, and contributed greatly to the formation of her son's mind. His father died when the future novelist was yet young. He was educated by private tutors, and entered Trinity hall, Cambridge, where he graduated in 1826. At the university he gained the chancellor's prize for English versification by a poem on "Sculpture" (1825). A friend at Cambridge, who had resided at Weimar, directed his attention to the beauties of German literature, which he set himself to study. He occupied his vacations by pedestrian tours through England and Scotland and by a jaunt on horseback over a great part of France. In 1826 he published a collection of his youthful effusions, entitled "Weeds and Wild Flowers." In 1827 appeared a Byronic poem entitled "O'Neill, or the Rebel." In 1827 his first novel, "Falkland," was published anonymously, followed, in 1828, by "Pelham, or the Adventures of a Gentleman." "Pelham" was adversely criticized in many quarters, but conveyed a general impression of originality and power. Next came the "Disowned," and, in 1829, "Devereux;" in 1830, "Paul Clifford;" and in the next year, a satirical poem entitled the "Siamese Twins." "Eugene Aram" appeared in 1832; "England and the English," in 1833; the "Student," in 1835. Previous to this he had been for some time editor of the "New Monthly Magazine." In 1834 appeared the "Pilgrims of the Rhine" and the "Last Days of Pompeii;" in 1835, "Rienzi, the Last of the Tribunes." In 1837 he wrote "Athens, its Rise and Fall," a work of historical criticism, and "Ernest Maltravers," and the continuation of the same, "Alice, or the Mysteries," in 1838; "Leila, or the Siege of Granada," appeared in 1840; "Night and Morning," 1841; "Zanoni," 1842; and the "Last of the Barons," 1843. In 1836 he first entered the lists as a dramatic writer. The "Duchess de la Valière" was a failure, but the "Lady of Lyons" and "Rochelien" were, on the other hand, very successful. "Money," a later comedy, was also well received. The "Poems and Ballads of Schiller," translated into English metre, appeared in 1844. "Eva, the Ill-omened Marriage, and other Tales and Poems," preceded the last-named. "Lucretia, or the Children of the Night" (1846), another romance, was condemned by the critics as being too full of horrors. Bulwer published a pamphlet in its defence, entitled "A Word to the Public." The "New Timon," a satirical poem, and "King Arthur," an epic, were published anonymously, the latter in 1848. "Harold, the Last of the Saxon Kings," was published in the same year. In 1850 appeared his "Caxtons," a domestic novel of English high life, first published periodically

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in "Blackwood's Magazine." "My Novel, or Varieties of English Life," was in the same style and equally well received. Meanwhile, in 1844, he had succeeded to the Knebworth estates of his mother, and exchanged, by royal license, his surname of Bulwer for that of Lytton, which he now bears. In 1851 he wrote "A Letter to John Bull, Esq., on Affairs connected with his Landed Property and the Persons who live thereon," in which protectionist views were advocated. In 1845 he wrote the "Confessions of a Water-patient, in a Letter to W. H. Ainsworth, Esq.," in which he recommended the water-cure to overworked literary men. He took great interest in the founding of the guild of literature and art, at whose service he placed a small portion of his estate, and for which he also wrote "Not so Bad as we Seem, or Many Sides to a Question" (1852), a 5-act comedy performed by a company of amateur actors. In 1856 he was elected lord rector of the university of Glasgow in opposition to Lord Stanley, and delivered an inaugural address advocating the study of the classics, and rejoicing over the increased weight of British literature in the intellectual balance of the world, as compared with the state of things in the 18th century. In 1857 he began to publish in "Blackwood's Magazine" a new novel, "What will he do with it?" No living English writer is more read on the continent of Europe than Bulwer. His works have been translated into nearly all the living languages of Europe. In America he has found republishers in Boston, New York, and Philadelphia.—Mr. Bulwer entered the house of commons as member for the small borough of St. Ives in 1831. He joined the ranks of the reformers. In 1832, when St. Ives had been deprived of its representative by the reform bill, he was elected by the city of Lincoln, which he continued to represent until 1841. He did not acquire in parliament any general influence. His efforts to relieve newspapers from the stamp duties and his speeches on the copyright question are the only points of his parliamentary career at this period of his life which have not passed into oblivion. He adhered rather to the radical than to the whig branch of the liberal party. In 1835 he published a political pamphlet, entitled the "Crisis," which ran through 7 editions, and was very serviceable to the whigs. He was created a baronet in 1838. He was defeated by the conservative candidates for the borough of Lincoln in June, 1841, and again in July, 1847. Having reëntered parliament as a member for the county of Herts, in the general election of 1852, as a conservative and supporter of the earl of Derby, he soon distinguished himself by some lively and well-put opposition speeches, and rose to the position of an ornamental leader of the party. In 1855 he supported the repeal of the penny stamp duty on newspapers in opposition to the bulk of his political associates. At the general election of 1857 he was again



returned as member for Herts. In June, 1858, he became a member of the Derby cabinet as successor of Lord Stanley in the office of secretary of state for the colonies.

**BUNAISOR** (anc. *Vaniwara*), a town in the presidency of Bengal, British India. It is now in ruins, and is said to contain a great number of temples, one of which surpasses in size the famous temple of Juggernaut.

**BUNCOMBE.** I. A county of North Carolina, near the border of Tennessee; area, 450 sq. m., occupied in great part by mountains and valleys of the Appalachian system. The Blue Ridge is on or near the S. E. boundary. The French Broad river is the principal stream. The soil is fertile, and affords excellent pasturage. In the N. W. part are celebrated warm springs. The productions in 1850 were 487,014 bushels of Indian corn, 27,548 of wheat, 185,804 of oats, 3,243 tons of hay, 127,677 pounds of butter, and 1,899 of tobacco. There were 86 corn and flour mills, 7 saw mills, 2 newspaper offices, 44 churches, and 4,682 pupils attending public schools. Value of real estate in 1857, \$1,164,265. The county was formed in 1791, and named in honor of Col. Edward Buncombe, an officer of the continental army. Pop. 18,425; 1,717 being slaves. Asheville is the capital. The origin of the phrase, "talking for Buncombe," is thus explained: "Several years ago, in congress, the member from this district arose to address the house, without any extraordinary powers, in manner or matter, to interest the audience. Many members left the hall. Very naively he told those who remained that they might go too; he should speak for some time, but 'he was only talking for Buncombe.'" (Wheeler's History of N. C.) II. A north-western county of Iowa, bordering on Minnesota, and having an area of 800 sq. m. The Inyan Reakah river intersects it, and the Sioux forms its W. boundary. In the E. part is Ocheyedan lake. The county is not included in the census of 1856.

**BUNDELOUND**, or the **BUNDELA COUNTRY**, an extensive province of Hindostan, between lat. 28° 52' and 26° 26' N., long. 77° 55' and 81° 39' E. Area, 18,099 sq. m.; population, 2,260,714. It comprises the British districts of Bandah, Hummerpoor and Calpee, Jaloun, Jeitpoor, Churgaon, Dubol, and Gurota, and a number of petty native states and jaghires, all under British protection. Up to 1857, it was included in the North-West Provinces, but on the overthrow of the lieutenant-governor's authority by the sepoy revolt, it was erected, with Goruckpoor, Benares, Allahabad, the Lower Doab, and Saur, into a new government called the Central Provinces, of which Mr. Grant, a member of the supreme council, was appointed lieut.-governor. It is a hilly country, traversed by the 3 ranges of the Bindyachal, Bandair, and Punna, the last of which is rich in diamonds and coal. From these mountains flow numerous rivers, including the Betwah, Desan, and Cana, all affluents of the Jumna, which flows along the N. E. boundary. The

soil produces almost every kind of grain and fruit known in India. The climate is healthy in some places, but in others, chiefly in the W., is fatal to Europeans. The chief towns are Calpee, Bandah, Jhansi, Duttee, Oorcha, Jaloun, and Callinger.—The earliest dominant power in Bundelound, of which there is certain record, is that of the Ohundel Rajpoota, from the 9th to the 12th century. Under them the country reached its culminating point of prosperity, and on their decline was occupied by the Bundelaa a branch of the Garwha tribe of Rajpoots. About 1784 the district of Jhansi and a third part of eastern Bundelound were made over to the peishwa, in consideration of services rendered by him in a contest with the emperor of Delhi. The remainder of the country gradually became divided into petty chieftainships; incessant wars naturally followed; and in 1792 the Mahrattas made a partially successful attempt to subjugate the entire territory. Soon after the peishwa ceded to the British the districts of Hummerpoor and Bandah, and in 1817 by the treaty of Poonah made over to them all his remaining possessions in Bundelound. The power of the East India company was not established in the ceded districts without much resistance from the secondary chieftains, but after their pacification the country remained comparatively tranquil until 1857. It was seriously affected by the sepoy rebellion, though the native princes are said to have generally sided with the British. Mutinies took place at Jhansi (June 4), Nowgong (June 10), and Bandah (June 14). The rising at the first of these places was attended with the massacre of about 70 Europeans, among whom were 19 women and 23 children. The Europeans at Nowgong escaped by flight, and those at Bandah were protected by the nawab of that place, a titular prince who receives a pension from the E. I. company. Sir Hugh Rose recaptured Bandah, Jan. 31, 1858, and stormed Jhansi, after a siege of 12 days, April 4. Our latest accounts (July, 1858) left him marching toward Calpee, where the sepoys had meanwhile been gathering in great force. He was opposed on the route by a body of 7,000, commanded by the ranees of Jhansi and a brother of the Nae Sahib, whom he defeated in a pitched battle.

**BUND-EMIR**, or **BUND-EMEER** (anc. *Araxes*), a Persian river, rapid and apt to inundate its banks. It is 150 miles long, and empties into Lake Bakhtegan.

**BUNGE**, **ALEXANDER**, a Russian botanist and traveller, born at Kiev, Sept. 24, 1803. He was educated at Dorpat, and after taking the degree of M. D., in 1826, he travelled in Siberia and the eastern part of the Altai mountains, and then joined the mission of the academy of St. Petersburg to Peking. He remained 8 months at Peking, and procured a extensive herbarium. In 1833, by invitation of the academy of St. Petersburg, he made a second Asiatic journey, and in 1836 settled as professor of botany at Dorpat. His principal publications are catalogues of the plants which

he collected in China and near the Altai mountains.—FREDERICK GEORGE, brother of the preceding, a historical writer upon law, born at Kier, March 1, 1802. He was educated at Dorpat, and since 1831 has been professor of law there; and since 1842 has been burgomaster of Revel. His writings, principally upon the history of law and rights in the countries around the Baltic sea, are numerous, and valuable.

**BUNION**, a swelling on the inside of the first joint of the great toe, is caused by the pressure of tight boots or shoes. The same term is sometimes applied to a similar kind of swelling on the first joint of the little toe, or on the instep. Those who are troubled with bunions have the great toes turned outward and the little toes inward to an unnatural extent, from wearing boots or shoes too narrow at the extremities, which force the toes out of their natural position. The proper remedy is to wear loose boots or shoes made of cloth or of soft leather, with sufficient room for the free movement of the toes, and space enough for the bunions. High heels should also be discarded, as they throw the foot forward in the boot, and thus increase the pressure on the instep and the toes. When a bunion is not inflamed, the pressure may be partially removed by applying over it and the surrounding parts a piece of thin linen or silk spread with diachylon plaster, and over the latter a piece of thick buckskin leather of the same dimensions, also covered with diachylon, and perforated with a hole the size of the bunion; the pressure is thus thrown on the adjacent parts. Much walking in warm weather may bring on inflammation of the bunion, which then becomes painful; in which case poultices, fomentations, or leeches may be necessary; or if matter forms, the lancet may be required to give vent to it.

**BUNKER HILL**, a round, smooth elevation in Charlestown, Mass., 110 feet high, commanding the peninsula of Boston. It was connected by a ridge on its southern slope with Breed's hill, about 75 feet high, the crests of the 2 hills being about 700 yards apart. These heights are famous for the battle fought on them between the British and American forces, June 17, 1775. The city of Boston was at that time occupied by the British under Gen. Gage, who had recently received large reinforcements under Generals Howe, Burgoyne, and Clinton. Around Boston, having their head-quarters at Cambridge, were the minute men of Massachusetts and various bodies of militia and parties of volunteers, as yet independent of each other, obeying their several commanders, knowing little of military discipline, united only by their devotion to the common cause, but of which Washington in person was soon to take command. Gen. Artemas Ward, the military head of Massachusetts, was, however, in general regarded as commander-in-chief, while Prescott, Putnam, Gridley, Stark, and

Pomeroy, who had learned the art of war in the old contests between England and France, served under him. The beleaguered and now reinforced British, had determined to begin offensive operations against the rebels. This design became known in the American camp, where the daring counsels of the officers and the inexperienced eagerness of the soldiers at once suggested the project of anticipating any movement of Gen. Gage. It was determined to seize and fortify the heights of Charlestown on the night of the 16th of June, and Col. William Prescott, of Pepperell, whose military port, garb, and reputation alike gave him consequence, received command of a brigade of 1,000 men to execute this perilous enterprise. The detachments paraded soon after sunset, on Cambridge common, where prayers were offered up by Langdon, the president of Harvard college. At about 9 o'clock they began their march toward Charlestown, and near the isthmus called Charlestown neck were joined by Major Brooks and Gen. Putnam, and by the wagons laden with intrenching tools. Prescott conducted them undiscovered up the ascent of Bunker hill, and thence, after a consultation, to Breed's hill, which was nearer to Boston, and had better command of the town and shipping. There the lines of a redoubt were marked out, and a little after midnight the first sod was thrown up. Twice during the night Prescott repaired to the water's edge to be sure that his party was unobserved, and heard the drowsy sentry's cry from the decks of the British men of war, "All's well." At dawn of day a strong redoubt, flanked on the left by a breastwork which extended northerly toward a piece of low land called the Slough, was already completed, and was espied from the ships in the harbor. These immediately brought their guns to bear upon it, and the cannonade awoke the citizens and occupants of the town, who crowded to gaze with wonder upon the bulwark which had so silently and suddenly sprung up. Gen. Gage with his telescope descried the tall figure of Prescott walking the parapet and encouraging the men, and asked quickly, "Will he fight?" "Yes, sir, to the last drop of blood," was the answer from one who knew him. Meantime, amid an incessant shower of shot and shells, on one of the hottest days of the season, after having toiled all night, and possessing but scanty supplies, the Americans steadily pursued their work till about 11 o'clock. At that time the intrenching tools were removed by Putnam to Bunker hill, with the design of forming a new breastwork there. Prescott strengthened his right flank by some troops thrown into the village of Charlestown at the southern foot of the hill, and on the left, at the very moment of battle, a fortification against musket balls was completed by the intertexture of 2 rail fences and the new-mown hay of the meadows. While the military din and clatter which resounded from the streets of

Boston announced an impending attack, Prescott repeatedly sent messages to Cambridge asking for reinforcements and provisions, and Putnam went in person to urge the exigencies of the case. Yet Ward hesitated to expose his stores and to risk a general engagement by weakening his main body, and it was not till 11 o'clock that orders from him reached Stark at Medford to advance to the relief of Prescott. This veteran was at the head of 500 New Hampshire troops, and wisely and warily led them on at a moderate pace, determined to bring them fresh into battle. He appeared on the heights at about 2 o'clock, and took his position on the left to maintain the rustic bulwark which reached toward the Mystic. At the same time Warren arrived, and after declining the command, which was tendered to him by Putnam at the rail fence, and by Prescott on Breed's hill, entered the redoubt as a volunteer, and was cheered by the troops as he selected the place of greatest danger and importance.—Already the British army of assault had landed. Gen. Gage had decided, in opposition to a majority of his council, to attack the Americans in front instead of in rear, in the conviction that raw militia would flee before an assault of veterans. At about 1 o'clock, in plain sight of the Americans, 28 boats and barges, containing 4 regiments of infantry, 10 companies of grenadiers, 10 of light infantry, and a proportion of field artillery, in all about 2,000 men, bore away from Boston under cover of a heavy fire from the ships in the harbor, and landed without opposition at Moulton's Point, a little to the north of Breed's hill. Gen. Howe commanded the right wing, which was to push along the bank of the Mystic river, and attempt to force the rail fence, and so to outflank and surround the whole American party; Gen. Pigot commanded the left wing, which was to mount the hill and force the redoubt. Reinforcements were on their way toward the American lines during the whole day, but the whole number who arrived in time to take part in the action did not exceed 1,500 men. Prescott commanded upon the redoubt, Knowlton and Stark on the left, and Putnam was active and efficient, in various ways, now planning additional fortifications on Bunker hill, now scouring the whole peninsula to hurry up reinforcements, and now mingling with, encouraging, and threatening the men at the rail fence. The 2 columns of the British, after partaking of refreshments, advanced to a simultaneous assault at a little after 2½ o'clock. With their scarlet uniforms and flashing armor they presented a formidable appearance, and Gen. Pigot's division ascended the hill in good order, discharging their musketry, and galled only by a flanking fire from the Americans in Charlestown. The men in the redoubt, obedient to the strict command of Prescott, withheld their fire till the enemy had approached within 8 rods, when a tremendous volley was discharged, and nearly the whole front rank of the British

fell. The assailants, recoiling for a moment, again advanced, and were met by a second volley more effective than the first. The Americans were all marksmen, and for a few minutes an unremitting fire was kept up between the 2 armies, till the British staggered and retreated in disorder, some of them even to their boats. Gen. Howe's division had in like manner moved gallantly forward, been received at the distance of 9 rods by a sheeted and deadly fire from the whole line of the rail fence, and forced after a struggle into confusion and a precipitate retreat. The moments following this first check given by New England husbandmen to the veteran battalions of the mother country, were employed by the American officers in cheering and praising the men. Meantime Charlestown neck, over which recruits were hurrying to the action, was raked by an unceasing discharge of balls and bomb shells from the neighboring British batteries and ships; the village of Charlestown, from which so much annoyance had been experienced in the first attack, was set on fire by shells thrown from Copp's hill, and its 500 wooden edifices burst into a blaze; and while the thunder of artillery, the cracking of bomb shells, the dense volumes of flame and smoke, the crash of burning buildings, and the shouts of the combatants, made a scene than which, wrote Burgoyne, "nothing ever has or ever can be more dreadfully terrible," the British began their second attempt to storm the redoubt, firing musket shots as they ascended the hill. The Americans reserved their fire till the enemy was within 6 rods, and then a volley aimed with the fatal skill of sharpshooters did its accustomed execution. The British, however, pressed boldly forward in the face of a continuous stream of fire, but staggered before reaching the redoubt, and in spite of the remonstrances, threats, and even blows of the officers, again gave way, and retreated in greater confusion than before, leaving some of their dead within a few yards of the works. The grass fence on the left was at the same time maintained against Gen. Howe, whose division suffered severely in loss of men and officers. The crowd of spectators on the opposite shore beheld with astonishment the successful stand of raw militia against veteran regulars, and the British soldiery in Boston regarded with consternation the convoys of wounded which were brought back to the town. Gen. Clinton who from Copp's hill had watched the action now hurried over as a volunteer with reinforcements. The terrible scene was new to the American troops, but they answered with cheer when Prescott cried, "If we drive them back once more, they cannot rally again." It was now discovered that the ammunition was nearly exhausted, and when the engagement was renewed the Americans had each only from 1 to 4 charges of powder left, and not more than 50 bayonets in all. The British advanced in 3 divisions, from the south, east, and north-east

and when close at hand received the same murderous volley which had never during the day been poured in upon them without making them recoil for an instant. They advanced with fixed bayonets, and the American fire immediately slackened. The last round of ammunition shot down those of the enemy who first mounted the parapet, one of whom was Major Pitcairn. There was for some time a hand-to-hand struggle carried on by the Americans with their few bayonets, the stocks of the muskets, the barrels after the stocks were broken off, and even with stones, till the wings of the British getting into the rear of the redoubt, at a little before 4 o'clock Prescott gave the order for retreat. He himself was one of the last to leave the redoubt, parrying with his sword bayonets which pierced his coat, and his men cut their way through the 2 divisions by whom they were nearly surrounded. They received a destructive volley as they left the redoubt, and Warren fell shot through the head with a bullet. Stark and Knowlton maintained their station at the rail fence till the troops of Prescott had left the hill, and then retired slowly, Pomeroy, a veteran of 70 years, firing back upon the enemy till his musket was shattered by a ball. The retreat was across Bunker hill, where they were encountered by Putnam, who had been collecting reinforcements, and who, amid whistling balls, sought in vain to rally them to make a stand at the unfinished works which he had constructed. The retreat was harassed by a raking fire from the British ships and batteries, but there was no pursuit beyond Charlestown neck. Putnam, who had assumed the supreme direction after the retreating forces left Bunker hill, rallied a portion of the fugitives, and encamped that night on Prospect hill. Prescott repaired to head-quarters at Cambridge, and was so little discouraged that he offered with 8 regiments to recover his post. Indeed, the result of the battle, though a defeat, had all the moral effect of a victory. The Americans had seen superior numbers of the disciplined soldiers of England retreat before their fire, and were confirmed in the trust that their liberties would be preserved. The loss of the British in killed and wounded, by the account of Gen. Gage, was at least 1,054, among whom were 70 commissioned officers wounded and 18 killed. The whole loss of the Americans was 145 killed and missing, and 804 wounded. The death of Warren, one of the most guileless and ablest of patriots, caused profound and universal sorrow.—In the centre of the grounds included within the redoubt on Breed's hill, now stands the obelisk known as Bunker hill monument. It is a square shaft, built of Quincy granite, 231 feet in height, 31 feet square at the base, and 15 at the top. Its foundations are enclosed 12 feet under ground. Inside of the shaft is a round hollow cone, 7 feet wide at the bottom, and  $4\frac{1}{2}$  feet at the top, and encircled by a winding stair-case of 294 stone steps which

leads to a chamber immediately under the apex, 11 feet in diameter. This chamber has 4 windows, which afford a wide view of the surrounding country, and contains 2 cannons, named respectively "Hancock" and "Adams," which were used in many engagements during the war. The corner-stone of this monument was laid on the 50th anniversary of the battle, June 17, 1825, by Gen. Lafayette, then the nation's guest, when Daniel Webster, pronounced an oration to an immense concourse of people. There were present on the occasion about 200 soldiers of the revolution, and 40 survivors of the battle. The monument was completed in 1842, its entire expense having been over \$150,000; and on June 17, 1843, it was dedicated, Daniel Webster being again the orator, and the president of the United States and his whole cabinet forming a part of the vast audience.

BUNPOOR, BUNPUR, or BENPUR, a fort and district in western Beloochistan. The fort is built of mud upon a large mound, apparently artificial, which the natives say was raised by an army of Ghebers. The soil is fertile, and the chief of the territory obtains from his subjects an annual revenue of about \$13,000, beside contributions of camels, sheep, wheat, &c. The military force is 800 cavalry and 2,500 infantry.

BUNSEN, CHRISTIAN KARL JOSEF, chevalier, a German statesman, philosopher, and theologian, born Aug. 25, 1791, at Corbach, ancient capital of the German principality of Waldeck. He began his studies at the university of Marburg, and continued them from 1809 to 1818 at Göttingen under the celebrated Heyne. In 1811 he was made a teacher at a gymnasium in Göttingen. He now gained an academical prize by a disquisition on the Athenian laws of descent, published in 1813 at Göttingen. After resigning his place, Bunsen went to Holland and to Copenhagen to study the Frison, Scandinavian, and Icelandic languages. In 1815 he went to Berlin and became acquainted with Niebuhr, who henceforth exercised a powerful influence on Bunsen's scientific and political career. In 1816 he went to Paris and studied the oriental languages under Sylvestre de Sacy. Then he accepted the office of tutor to a young American travelling in Europe; but after waiting for a long time the arrival of his pupil at Florence, Bunsen went to Rome, where he married the daughter of a clergyman of the English church, and renewed his relations with Niebuhr, then Prussian minister there. Bunsen became Niebuhr's private secretary, which rendered him a sharer in the latter's literary labors; and in 1818 he became secretary of the legation. From this time his influence began to be felt alike in the scientific and literary world, and in the political affairs of his time. The late king of Prussia visited Rome in 1824, was pleased with the ardent but enlightened Protestant fervor of the secretary, and to this are ascribed several reforms in the state church of Prussia, which were decreed by the king dur-

ing his sojourn in the centre of the Roman world. When, in 1824, Niebuhr resigned his diplomatic position, Bunsen was made *chargé d'affaires*, and in 1827 minister of Prussia near the holy see. When the European powers sought to bring the affairs of Rome into order, Bunsen elaborated for the conferences the so-called *memorandum del Maggio*. He had obtained from Pope Leo XII. the celebrated brief regulating mixed marriages; but when Gregory XVI. succeeded Leo, a different view of the subject was taken at the Vatican; and then began in Germany, Poland, and all semi-Catholic and semi-Protestant countries, a series of dissensions between the state and the clergy, a contest which ended in the imprisonment of several bishops. Bunsen, being unsuccessful in his efforts to change the opinion of the pope, gave up his diplomatic position in Rome in 1837, and in 1838 became Prussian minister to the Swiss federation. In 1841 he was sent to England to take measures for the erection of a Protestant bishopric in Jerusalem, and soon after was made ambassador at the court of St. James. From England he several times visited Berlin; and in 1844, at the request of the king of Prussia, presented several memoirs and projects concerning the introduction into Prussia of a representative form of government, modelled as far as possible on the English standard. After the outbreak in 1848 Bunsen strongly favored the cause of Schleswig-Holstein against Denmark, and published a pamphlet in English, under the title, "Memoir on the Constitutional Rights of the Duchies of Schleswig and Holstein, presented to Viscount Palmerston April 8, 1848." His convictions, and the influence of his name, were on the side of the efforts made by the diet in Frankfort for the union of Germany under the king of Prussia, as emperor, and he supported this movement in several pamphlets. In 1849, in the name of Prussia, he participated in the conferences at London, and protested in 1850 against the decisions of the London protocol, which in the name of England, France, Austria, and Russia, settled the question of Schleswig, as he contended, contrary to the interests of Germany. At the beginning of the eastern war, Bunsen's sympathies were with the western allies, contrary to the will and opinion of the cabinet which he represented at London. This fact, and his opposition to the pietistic turn of the Prussian court and government, weakened the favor which for more than 20 years he had enjoyed with the king of Prussia. Toward 1853 he fell into disgrace, resigned his diplomatic functions, and retired to an active and studious private life. He established himself in the city of Heidelberg, whose university, for centuries the stronghold of Protestantism, was at the beginning of 1848 the focus of moderate liberal ideas. Bunsen holds there the position of a leader and champion of the freedom of the Christian church; opposing sternly all limitations of religious liberty, wheth-

er exercised by Roman or Lutheran, by the sacerdotal or civil powers. The most recent of his publications of this character is entitled "Signs of the Times" (Leipzig, 1855-'56, 2 vols.), which was followed by "God in History," in 1857. During this period he refused the offer of the citizens of Magdeburg to elect him to the Prussian chamber of deputies.—Bunsen's literary activity has been displayed in various intellectual fields. During his residence in Rome, in conjunction with Niebuhr, he studied Roman antiquities, and made various historical researches upon the philosophy of language and religion, and their influence in the world's history. He united the study of Plato's philosophy with Biblical and liturgical studies, and with researches in the history of Christianity. In 1826, under Champollion, who was then at Rome, he studied the Egyptian hieroglyphics. As the result of these labors we have the great work, "Egypt's Place in Universal History" (Hamburg and Göttingen, 1845-'57, 5 vols.), a book divided into 5 parts, each composing a distinct whole. Most of his other publications bear on theological and political questions. Among them "Hippolytus and his Times, or the Life and the Teaching of the Roman Church under the Emperors Commodus and Alexander Severus" (Leipzig, 1853, 2 vols.), is considered one of the most eminent productions of the present epoch in the field of theological literature. From the press of Brockhaus, of Leipzig, appeared in the early part of 1858 the first semi-volume of his "Complete Bible-work for the Christian Community" (*Vollständige Bibelwerk für die Gemeinde*). This comprehensive work, which has engaged Chevalier Bunsen's attention for many years, will be brought out in 8 great divisions, the 1st division in 4, the 2d in 3 volumes, and the 3d division in 1, altogether in 8 volumes, which will be issued at the rate of 4 semi-volumes a year, so as to complete the entire publication in 4 years, from 1858 to 1862. The 1st division will contain the translation and exposition of the Bible, viz.: the Law, the Prophets, and other books of the Old Testament, and the books of the New Testament, with copious explanatory notes accompanying the translated text. The 2d division will be a continuation and completion of the first, under the title of "Bible Texts historically arranged and explained." The 3d division, under the titles, "Bible History," the "Everlasting Kingdom of God," "Life of Jesus," &c., will present a consideration of the great events and personages of the old and new covenants. The author states that the translation will aim at presenting a close but improved rendering of the original text, and a producing a work which shall not only prove useful to theologians and scholars, but to the people at large.

BUNTING, a name given to several birds of the order *passeres*, tribe *coraciiformes*, family *fringillidae*, and sub-family *emberizinae*; characterized by an acute conical bill, with a straight c

nearly straight culmen, and with the lateral margins annulated; the interior of the upper mandible with a palatic knob; the wings moderate and somewhat pointed; tarsi about as long as the middle toe, and scaled; hind toe robust and longer than the inner; claws slender and generally curved. Among the genera are *eupiea* (Pr. Bonap.), of which a well-known species is the black-throated bunting (*E. Americana*, Gmel.), with the fore part of the head greenish olive, hind head, neck, and cheeks dark ash-gray; streak over eye and lower mandible, lower neck, and middle of the breast yellow; chin white, throat black, sides gray, abdomen white, and lesser wing coverts bright chestnut; length 6½ inches; female without the black on the throat. This bird arrives in the New England states from the south about the middle of May, and returns early in September, spending the winter beyond the limits of the United States; it consumes caterpillars, insects, and immense numbers of canker-worms early in the summer; it also eats seeds of various grasses. The nest is made on the ground, and the eggs are 5, white, speckled with black. Birds of this genus are found also in Asia, Europe, and South America; they frequent bushes and open cultivated fields, seeking their food on the ground; there are about 13 species described. The genus *emberiza* (Linn.), of which familiar species are *E. hortulana*, and *E. miliaria*, contains about 30 species, scattered over the old and new world, especially the former; on the approach of winter they collect in flocks, in which they remain until spring; their habits are the same as those of the preceding genus. The genus *plectrophanes* (Meyer), contains 4 species, among which are the snow-bunting (*P. nivalis*, Linn.), and the Lapland lark-bunting (*P. lapponicus*, Linn.), remarkable for their long hind toe, and very long and nearly straight claw. In winter they live in temperate Europe and North America, going to the far north in spring to breed; they associate in flocks in open mountainous districts, running quickly on the ground in search of seeds, Alpine fruits, and insects; the nest is made in fissures of rocks or on grassy hillocks. Other *fringillidae*, as many species of sparrows and finches, are in various localities called buntings.

BUNTING, Jabez, D.D., an English minister of the Wesleyan Methodist connection, born at Monyash, Derbyshire, in 1778, died in London, June 16, 1858. Both his parents were members of the Wesleyan connection, and removed to Manchester when he was a child. While in the grammar-school there he attracted the attention of Dr. Percival, who employed him as his amanuensis, and at his death made him one of his executors. While yet in his youth he became a member of the Wesleyan church; entered the travelling connection in the year 1799, and joined the conference after the death of Mr. Wesley, and was appointed to Oldham circuit. After travelling 4 years he came to the notice of Dr. Coke, who

selected him for the missionary work, designing to have him sent to Gibraltar. For some cause or other this design was not carried out, and he was sent to London, where he labored with much success and gained great popularity as a pulpit and platform orator. After remaining 3 years in London he was removed to Manchester, where he distinguished himself as an advocate of ecclesiastical order and discipline in a controversy with some disaffected Methodists. In this controversy he gave such evidence of a knowledge of the polity of Wesleyan Methodism as excited the admiration of the people, and secured for him the favor of the entire body to which he belonged. He was 4 times president of the Methodist conference; officiated during 17 years as missionary secretary; during 8 years as editor; since 1885, when the theological school was established, as president of that institution, and was looked upon as the acknowledged leader of the Methodists, superintending the interests of the body at home and abroad, while, at the same time, his influence was felt in other evangelical denominations, and also in the political world, statesmen frequently resorting to him for advice. Although his sphere of activity was so great, he derived only the ordinary emoluments of a Methodist minister, namely, a yearly salary of £150, with house-rent and taxes. During all the distractions connected with the secessions that have taken place in the Wesleyan body, Dr. Bunting remained a firm, unwavering adherent and advocate of the doctrines and discipline of the church as they came from the hands of John Wesley, and to his influence and indefatigable zeal, are to be ascribed, in a large degree, the permanency and prosperity of the Wesleyan connection.

BUNTZLAU, or BUNZLAU, a town of Prussian Silesia, on the Bober. In the market place stands a monument to the Russian general Kutusoff, who died here in 1818. The town also contains an orphan asylum, schools, and several factories. Buntzlau chinaware is much valued in Germany. Pop. about 6,700. The poets Opitz and Tscherning were born here.

BUNWUT, an island in the bay of Illanon, Malay archipelago, about 60 miles from Mindanao. It is surrounded by a chain of islets, coral banks, and dangerous reefs, except at one point on the E. side, where good anchorage can be obtained. It is 9 miles long, and 4½ broad. This island is in possession of a piratical chief of Selangan, and is resorted to as a rendezvous of the Illanon pirate fleets.

BUNYAN, JOHN, the author of "Pilgrim's Progress," born at Elstow, near Bedford, in 1628, died Aug. 31, 1688. His father was a tinker, and brought up his son to the same business, giving him a very imperfect education. It has been usual with the biographers of Bunyan to attribute to him an idle, vagrant, and dissolute youth, but this in a great degree is owing to Bunyan's own strain of self-condemnation. In after years, when he was made the subject of

obloquy and accused of the very vices which he had laid to his own charge, he indignantly defended himself and denied the truth of the allegations. There is no good reason to believe that his early manhood was stained with gross impurity, and a careful reading of his curious autobiography, "Grace abounding to the Chief of Sinners," will convince the student that he only adopts the extravagant style of the Puritans. He acknowledges a habit of profane swearing, but says that he was cured of this by a single well-timed rebuke. He appears to have been very fond of playing at tip-cat, and dancing on the village green, as well as ringing the church bells. All these amusements he in time came to look upon as sinful, and bemoaned as if he had committed irreparable evil. At the age of 17 he enlisted in the parliamentary army, but all that is known of this part of his career is, that he was present at the siege of Leicester, and escaped death by permitting a fellow-soldier to take his place as a sentinel, and thereby lose his life. Bunyan always regarded this as a direct interposition of Providence. His military experience was eventually reproduced in his writings, especially in his "Holy War," written after the completion of the "Pilgrim's Progress." Soon after the campaign of 1645 he returned home and married one as poor as himself. He now partook of that religious enthusiasm which was spreading all over the land; and he became distressed by doubts regarding the safety of his soul, and suffered all the horrors experienced by those who imagine themselves forever shut out from the mercy of God, and given up to the powers of hell. During the year which he assigns as the period of his greatest terrors, his sufferings were extreme. Now he would imagine that only the Jews could be saved, and again that the Turks and not the Christians were true believers. At last his mind became more quiet, his soul was gradually comforted, and he began to preach to the poor people of Bedford. He had been 5 years engaged in this occupation, when the restoration placed power in the hands of the cavaliers, and in common with many he was imprisoned. In Bedford gaol, the place of his incarceration, he remained upward of 12 years. His faith was put to the trial many times, as he was constantly told that if he would give up preaching he should at once be set at liberty, yet he always answered: "If you let me go to-day, I will preach again to-morrow." Nothing could shake his resolution, neither sneers, nor threats, nor his own health, nor the condition of his family suffering from poverty. Not being able to work at his old trade of a tinker, he made tagged laces to support himself, wife, and children, one of whom had been blind from her birth. These laces were furnished to peddlers, and while employed in this mechanical way, he neglected no opportunity of preaching to the prisoners. He had a most intimate knowledge of the Bible, which, with Fox's "Book of Martyrs," was a constant companion, and such hours as he could

devote to composition, were now spent in religious writing, many of his papers being against the Quakers, whom he cordially disliked. The misery of his family, and his own courage, at last prevailed with those in power; the rigor of his confinement was relaxed, and in 1671 he was freed altogether. In 1678 he published the 1st part of his "Pilgrim's Progress," only one perfect copy of which is known. To the corrector of the press he is indebted for a little improvement in the syntax and spelling, but not a single scene or line of that immortal work was suggested to him by others. When he had entirely completed the 1st part, he showed it to some of his friends, and was generally annoyed by their criticisms, they being divided in sentiment whether it should appear or not; but he finally wisely decided to publish it. At first it reached but a small class of the community, although hailed by them with delight; but in the same year a 2d edition was published with great success. From 10 to 15 editions were issued during the author's life, and he had the satisfaction of knowing that his work was read and re-read by hundreds of thousands in England, Scotland, among the Protestants of Holland, the Huguenots of France, and the settlers of New England. In 1684 he published the 2d part of it, and soon afterward his "Holy War," now little read. He continued to preach without further molestation, and every year made a journey to London, where he drew together at all times a large concourse to listen to his sermons. In the summer of 1688 he took cold from riding in a heavy rain after a benevolent visit to reconcile an angry father to his son. He died at his lodgings in Snowhill, and was buried in the grave-yard of Bunhill-fields, London. His great fame rests upon his "Pilgrim's Progress." Of this the editions have been almost innumerable, as well as its imitations. Yet fascinating as it is to the young and old, learned and unlearned alike, for full 100 years it was cherished by the lowly and obscure before its merits were appreciated by the great. No estimate can be formed of the good it has accomplished, or the number of pilgrims its examples have cheered and sustained in their journey through life. The story of Christian, his despair and struggles, his escape from his neighbors Pliable and Obstinate, his contempt for the counsels of Mr. Worldly Wiseman, who dwelt in the town of Carnal Policy and went to church in Morality, his meetings at the wicket-gate and the house Beautiful, his dreadful fight with Apollyon, his passage through the valley of the Shadow of Death, and, in truth, the whole of his triumphant pilgrimage, will ever charm the reader, from one gifted with the world-wide genius of Bacon, to the humblest rustic, "never heard of half a mile from home."—ROBERT, the last male lineal descendant of John Bunyan, born in 1776, died at Lincoln, England, Nov. 27, 1855.

BUOL-SCHAUENSTEIN, KARL FERDINAND, count, an Austrian statesman, born May 17, 1797, has been successively ambassador at Stutt-

part, Turin, and in 1848, for a short time, at St. Petersburg. Subsequently he was selected, with Baron Meyendorf, to aid Prince Schwarzenberg in the conferences at Olmütz, and at a later period he attended those of Dresden. In 1861 he officiated as ambassador in London, where he succeeded in smoothing the difficulties which had arisen between the English and Austrian governments, on the subject of Lombardy. After the death of Prince Schwarzenberg he was appointed, April 11, 1862, to succeed him as president of the Austrian cabinet, and as minister of foreign affairs; positions which he continues to hold. In 1855 he presided at Vienna over the conferences of Russia and the allied powers, and in 1856 attended the congress of Paris, where he signed, on behalf of Austria, the general treaty of peace of March 30, and on April 15, a separate treaty concerning Austria alone. In the complications of Austria with Switzerland and Sardinia, and on various other occasions, Count Buol has exhibited great good sense and moderation.

**BUONALENTI, BERNARDO**, an Italian artist, born at Florence in 1588, died in 1608. He invented several hydraulic machines, and the invention of hand-grenades has also been attributed to him. He improved the scenic decorations of the theatres, and invented machines for changing them.

**BUONAROTTI, FILIPPO**, descended from an Italian family, born in Pisa, Nov. 11, 1761, died in Paris, Sept. 15, 1837. He received an excellent education under the auspices of the grand duke Leopold, but forfeiting the friendship of that prince, on account of his sympathies with the French revolutionists, he resorted to Corsica, where he commenced a journal of so inflammatory a character, that he became involved in difficulties with the government. After having spent some time in Sardinia, where he was invited to draw up a liberal constitution for the people, he eventually repaired to Paris to urge the desire of the people of the Corsican island of St. Pierre, for annexation to France. French citizenship was conferred upon him; he was employed in important missions in Corsica and Oneglia, and became an ardent partisan of the Terrorists. Having been detained for some time in prison after the fall of Robespierre, he founded the Pantheon association, and when this was dissolved by the government, he joined the conspiracy of Babeuf, was sentenced to transportation, but was finally permitted to retire to Geneva, and afterward went to Brussels, where he published, in 1828, his *Conspiration de Babeuf*. Returning to Paris after the revolution of 1830, he spent the rest of his life in poverty and obscurity.

**BUONAROTTI, MICHEL ANGELO**, an Italian poet, nephew to the great Michel Angelo, born at Florence in 1568, died Jan. 11, 1744. He was received into the academy of his native town at the age of 17. He was afterward admitted into the academy della Crusca, and took part in editing its great dic-

tionary. He edited the poems of his uncle, and composed 2 comedies, *La Fiera* and *La Tancia*, the former of which is divided into 5 days, with 5 acts to each day.

**BUONINSEGNA, DUCIO DI**, an old Italian painter who flourished at Sienna from about 1282 to 1315. His principal work was an altar-piece for the cathedral of Sienna.

**BUONONCINI, GIOVANNI BATTISTA**, an Italian composer, born in 1658, at Modena, died during the 18th century. In 1697 he went to Vienna, and soon after to Berlin, where his opera *Polifemo* had great success. After living a while at Rome, he went, in 1720, to London, and became there one of the most powerful rivals of Handel. Every thing in England, at that time, was made to bear upon party politics, and Buononcini became the favorite of the whigs, while Handel was supported by the Tories. But upon a trial of skill, in an opera of their joint composition, the talent and taste of Buononcini proved an unequal match for the genius of his rival.

**BUOYS**, floating objects formed of cork, wood, boiler plate iron, &c., usually hollow like a cask, and strongly hooped, which are moored on the water so as to rise and fall with the tide. They are either to mark a shoal, and so to enable vessels to navigate a channel in safety, or in rivers and harbors they are laid down for the purpose of enabling vessels to make fast, instead of letting go their anchors. Buoys are used also to point out the place at which an anchor or a cable has been let go near the shore.—Bell buoys, recently introduced, are floating platforms of plate iron, with a mast supporting a bell, and a rail around the platform to give security to persons taking refuge upon them.

**BUPALUS**, an ancient Greek sculptor, of a family long celebrated as statuaries, flourished at Chios about 600 B. C. He and his brother Athenis are best known for their satirical conflict with the poet Hipponax. Augustus adorned many of the Roman temples with works of the 2 brothers, who used the pure white marble of Paros. Pausanias represents Bupalus as being an elegant architect as well as a sculptor.

**BUPHONIA** (Gr. *Βουφόνος*, ox-killer), an ancient Athenian festival, celebrated every year on the 14th of Scirophorion, on the Acropolis, in honor of Zeus. Barley and wheat were placed on the altar, and the ox destined for the sacrifice was permitted to go and eat the seeds, when a priest armed with an axe sprang forward and slew the ox, and then secreted himself. The other priests, as if not knowing the author of the deed, made inquiry, and failing to ascertain any thing, for lack of a better victim arraigned the axe, found it guilty, and condemned it. The Buphonia were also called Diipolia.

**BURBAGE, RICHARD**, an associate of Shakespeare, and actor of his tragic parts, died March, 1620. Of his abilities there is little notice, except from one or two contemporary authors



by whom his name is incidentally mentioned. A contemporary epitaph, in which he is much praised, is extant. In 1603 he was one of the actors to whom, in company with William Shakespeare, a license was granted by James I.

BURBECK, HENRY, an officer in the American revolution, born in Boston, June 8, 1754, died at New London, Conn., Oct. 2, 1848. He joined the American army at the breaking out of the war, and received a commission as lieutenant. In 1777 he was made captain in a regiment of artillery in the Massachusetts line. He was with the army at Cambridge, was employed near New York till the British evacuated that city, was in the army of Pennsylvania under Washington, and shared in the conflicts of Brandywine and Germantown, in the winter's sufferings at Valley Forge, in the perilous retreat through New Jersey, and in the battle of Monmouth. He retired at the close of the war with the brevet rank of major. Subsequently he engaged under Gen. Wayne in the Indian wars on the western frontier, and for 4 years held command of Fort Mackinaw. In the war of 1812 with Great Britain, he held the rank of brevet brigadier-general.

BURCKHARDT, JOHANN KARL, a German astronomer, born at Leipsic, April 30, 1773, died in Paris, June 21, 1825. He was educated in practical astronomy under Zach at Gotha, by whom he was recommended in 1797 to Lalande at Paris, where he was appointed in 1799 adjunct professor in the bureau of longitudes, and after the death of Lalande, in 1807, became director of the observatory of the military school. He distinguished himself by his calculations of the orbits of comets, translated into German the first 2 volumes of the *Mécanique céleste* of Laplace, published many astronomical tables, and wrote valuable memoirs for the academy of sciences.

BURCKHARDT, JOHANN LUDWIG, a Swiss traveller, born at Lausanne, Nov. 24, 1784, died in Cairo, Oct. 17, 1817. He was descended from a patrician family of Basel, and after studying at Leipsic and Göttingen, went to England in July, 1806, where he formed the acquaintance of Sir Joseph Banks, and embraced the plan which the latter suggested of exploring the interior of Africa. He passed the next 2 or 3 years in gaining a knowledge of the Arabic language, and on March 2, 1809, sailed for the Mediterranean, arriving at Malta in April, and there assumed the disguise of a Mohammedan merchant. Thence he sailed for Syria, and on arriving on its coast joined a caravan and forthwith proceeded to Aleppo, where he made a protracted stay, engaged with his Arabic studies, and in gaining such a knowledge of the eastern character and customs, that afterward in times of trial and danger, when he was suspected of being a spy, he was enabled to pass not only as a true but as a learned Mussulman. In July, 1810, he left Aleppo on a journey to Palmyra, thence through the country of the Hauran to Damascus. He visited the famous ruins, but was pre-

vented from at once going to the Hauran by the treachery of the Arabs, although he remained 6 weeks in Damascus, and went to Lebanon, the territory of the Druses, Mount Hermon, and other places in Syria. He then in a fatiguing journey of 26 days explored this obscure country of the Hauran, the Huranitis of the Romans, finding many vestiges of ancient cities and Greek inscriptions, some of which dated as far back as the reign of Trajan and Marcus Aurelius. In Jan. 1811, he undertook excursions into the desert toward the Euphrates, and on one of these occasions was robbed, stripped to the skin, and failed in accomplishing any of the objects of his journey. In Feb. he again repaired to Damascus, made another journey into the Hauran, transmitted an account of his discoveries there to England, and on June 18 departed for the Dead sea. He explored its eastern shores, visiting many places celebrated in the Old Testament, and afterward the ruins of the city of Petra, which had not been visited by any modern European before himself. Proceeding toward Akaba, he joined a small caravan, crossed the desert of El Jih, and passing a short distance to the north of Suez, journeyed on to Cairo. His first employment at Cairo was to draw up a detailed account of his journey through Arabia Petrea; and then he turned his attention to an exploration of the interior of Africa. Finding no opportunity, he made a journey into Nubia, visiting the principal ruins of the Nile; he visited and described the majestic temple of Abou Sambool, which was afterward opened by Belzoni. On March 2, 1814, he joined at Esneh a caravan of about 50 slave merchants, and after suffering innumerable trials and privations, he arrived on June 26 at Suakin on the Red sea, where he took passage for Jiddah, landing there on July 18. His funds becoming exhausted, he determined to make a direct application to Mehemet Ali, then at Jayef, to learn whether he would accept a bill upon Burckhardt's correspondent at Cairo, and order his treasurer at Jiddah to pay it. This application was made through the pasha's Armenian physician, and before the result could be known to Burckhardt, Mehemet Ali, accidentally hearing of his condition, despatched a messenger to him with a sum of money, requesting him to repair at Tayef. Burckhardt at once obeyed the command, and on being presented to Mehemet Ali, Burckhardt clearly perceived that he was regarded by him as a spy of the English government, although he was well received by the pasha, and eventually obtained his permission to visit Mecca during the last days of the month of Ramadan. Accordingly, on Sept. 7, he departed with other pilgrims for the holy city, and arrived at Mecca 2 days afterward. Thence he went to Jiddah to complete the purchase of his travelling equipments, and returned to Mecca about the middle of October. After witnessing the gorgeous pageant and the religious services of the great pilgrimage of Arafat, he visited Medina, and

barely escaping from the plague which was raging at Yembo, he finally returned to Cairo, June 24, 1815. He then undertook a journey into lower Egypt, and afterward wrote the journal of his Nubian and Arabian travels. In 1816, the plague again broke out at Cairo, and to avoid it he made a journey to Mount Sinai. He was about to join a caravan for Fezzan, when he died of dysentery. He bequeathed his collection of 800 volumes of oriental MSS. to the library of the university of Cambridge, and his travels were published after his death in England and Germany.

BURDEN, HENRY, an inventor and mechanic, born at Dunblane, Scotland, April 20, 1791. His father was a small farmer, and it was while a youth engaged on the farm that the son gave evidence of inventive genius, by making with his own hands labor-saving machinery from the roughest materials, with but few tools and no models. His first marked success was in constructing a thrashing machine. He afterward engaged in erecting grist mills and making various farm implements. During this period he attended the school of William Hawley, an accomplished arithmetician; and afterward, having resolved to try his fortunes in America as a machinist and inventor, he went to Edinburgh and entered upon a course of studies, embracing mathematics, engineering, and drawing. Arriving in this country in 1819, he devoted himself to the improvement of agricultural implements. His first effort was in making an improved plough, which took the first premium at 3 county fairs. In 1820 he invented the first cultivator in the country. In 1823 he was appointed agent of the Troy iron and nail factory. In 1825 he received a patent for his machine for making the wrought spike. In 1834 he obtained a patent for an improvement in his spike machine, and in 1835 for a machine for making horse-shoes. In 1840 he patented a machine for making the hook-headed spike, an article which is used on every railroad in the U. S. In the same year he patented a self-acting machine for reducing puddlers' balls into blooms. In 1843 he patented an improvement in his horse-shoe machinery. In 1849 he patented a self-acting machine for rolling puddlers' balls into bars. In June, 1857, he patented a new machine for making horse-shoes. This may be considered his greatest triumph in mechanics; it is self-acting, and produces from the iron bars 60 shoes per minute. He has obtained patents for this machine from every prominent government of Europe. Mr. B.'s suspension waterwheel is another of his inventions. In 1833 he built a steamboat 300 feet long, with paddlewheels 30 feet diameter; from its shape it was called the "cigar boat." It was lost through the mismanagement of the pilot. In 1836 Mr. B. warmly advocated the construction of a line of ocean steamers of 15,000 tons burden. In 1845, when the steamer Great Britain was crippled by breaking one of her screw blades, Mr. B. went to England for the especial

purpose of inducing her owners to adopt the sidewheel, but was unsuccessful. His views in regard to ocean navigation becoming known to some gentlemen in Glasgow, they, with his permission, issued a prospectus for "Burden's Atlantic Steam Ferry Company," in which was advocated the establishment of a line of steamers of enormous size, thus anticipating by several years the "Leviathan" of Mr. Brunel.

BURDER, REV. GEORGE, an English clergyman of the Independent church, and one of the founders of the London missionary society, born June 5, 1752, died May 29, 1832. In 1778 he was admitted a student in the royal academy of arts. He began then to preach occasionally, and at length determined to abandon artistic pursuits altogether. He was settled as pastor first at Lancaster, and in 1788 he removed to Coventry, where he resided during 20 years. In 1808 he became pastor of the church in Fetter lane, London, where he officiated during the remaining 29 years of his life. He was secretary of the London missionary society, and editor of its organ, the "Evangelical Magazine." He is now remembered principally by his "Village Sermons," which appeared in 6 volumes from the years 1799 to 1812. He also published volumes of "Cottage Sermons," "Sea Sermons," and "Sermons to the Aged," which were very widely circulated; and edited the "Pilgrim's Progress," and Henry's "Commentaries upon the Bible."

BURDETT, SIR FRANCIS, an English politician, born Jan. 25, 1770, died Jan. 23, 1844. He was educated at Westminster school and Oxford, and afterward passed some years on the continent, residing at Paris during the early part of the French revolution, and returning to England, in 1793, imbued with some of its principles, in which he was encouraged by his friend and instructor, John Horne Tooke. He married Sophia, youngest daughter of Thomas Coutts, the wealthy London banker, and sister to the marchioness of Bute and the countess of Guildford. In 1796 he became parliamentary representative of Boroughbridge, in Yorkshire, his colleague being Sir John Scott, afterward Lord Eldon. In parliament he avowed the most liberal opinions, denouncing the government as inimical to the liberties of the people, and condemning the war with France. He strenuously advocated parliamentary reform, the liberty of the press, and inquiry into and exposure of the abuses in the Cold Bath Fields and other prisons. He was brought forward at the general election of 1803 as candidate on the popular interest for Middlesex, was elected after a long and close contest, had to vacate his seat, owing to some irregularity in the proceedings, stood a second contest in 1804, and was finally returned. He continued strongly in opposition to the government until the accession of Fox and Lord Grenville in 1806, when he as strongly supported their policy, but at the same time lost his seat for Middlesex at the general election. In 1807 he was put forward as candidate for the city of Westminster while suffering from a

wound received in a duel with Mr. Paul (who was also wounded and also went to the poll), and was elected with Lord Oochrane. He continued to sit for Westminster for the next 30 years. In 1809 he made strong, not to say violent, speeches in the house of commons in advocacy of parliamentary reform. Early in 1810 he presented, and forcibly supported, a petition from his constituents in favor of the same measure. In Feb. of that year John Gale Jones, a popular declaimer at reform meetings in London, having impugned the conduct and motives of the house of commons, was committed to Newgate by that assembly. Immediately afterward Sir Francis Burdett addressed a letter to his own constituents, in which he denied the power of the house of commons to imprison delinquents, and condemned their treatment of Gale Jones. This letter was published in Cobbett's "Political Register" on March 24, 1810, and after a warm debate (April 6) the house of commons voted it to be "a libelous and scandalous paper," and the apprehension of the writer was ordered. Maintaining that the speaker's warrant was illegal, he barricaded his house and was besieged for 2 days, when the sergeant-at-arms, assisted by police and military, forcibly entered and conveyed Sir Francis to the tower. Prior to this, riots had commenced in the neighborhood of his house, and the military had fired upon and wounded many of the people. On the return of the soldiers from escorting Sir Francis to the tower, the mob assailed them; the soldiers fired their carbines, and shot one man dead, beside wounding several others. Sir Francis remained in the tower, however, until the prorogation of parliament in June, 1810, when his imprisonment expired as a matter of course. He afterward brought actions against the speaker for having ordered his arrest with forcible entry into his house, against the sergeant-at-arms for having executed the speaker's warrant, and against the lieutenant of the tower for holding him in custody, but was unsuccessful. In succeeding sessions he contended that taxation without representation was a fraud on the public. He also opposed the suspension of the *habeas corpus* act, and supported Catholic emancipation. In 1819 he was prosecuted by the attorney-general for a letter condemning the proceedings of the Lancashire magistrates and yeomanry at the "Manchester massacre," and in March, 1820, a Leicestershire jury declared this missive to be a seditious libel. His sentence was 3 months' imprisonment and a fine of £1,000. The bank note which he thus paid away is still preserved in the bank of England, with an inscription in Burdett's own writing that to save his life, which further imprisonment threatened to destroy, he submitted to be robbed. He supported the cause of Queen Caroline; brought in, and carried through the commons, a Catholic emancipation bill; supported chancery reform; opposed the corn laws; steadily adhered to Mr. Canning during his brief premiership, in 1827;

aided Peel and Wellington in passing the Catholic relief bill of 1829; and strenuously supported Lord Grey in the reform bill and the abolition of slavery. Aristocratic by birth, rank, property, and connections, he became angry with Lord Melbourne for maintaining a compact, expressed or implied, with Mr. O'Connell, and even made a motion in Brooke's club for Melbourne's expulsion. His Westminster constituents, after 30 years' reliance upon him, sent him a requisition to resign his seat in parliament. He complied, again became a candidate (though with an avowed change in his politics), and, between distrust in Lord Melbourne and abiding popularity on personal grounds, was reelected, after a close contest. He made a tour through the north of England in the course of that year (1837), avowing decided tory opinions. At the next election he was returned as member for North Wiltshire, where he had large estates, and held that seat until his death. At one period of his life Sir Francis Burdett lent £1,000 to Mr. Cobbett, which sum was never repaid, Cobbett declaring (in a letter from Long Island in Nov. 1817) that principle forbade his paying money to any English subject, as he had been badly used by the English government.—In person Burdett was thin, and almost invariably wore the costume (buckskins and top boots) of an English fox hunter. The best portrait of him was given by Hayter in his "Passing of the Reform Bill." He was a fluent and earnest, rather than an eloquent speaker, and was fond of quotations from the classics. Parliamentary reform was the great purpose of his life, and when that was granted, in 1832, he considered all beyond that as advancing into revolution. Napoleon stated at St. Helena that if he had carried out his intention of invading England, it was his purpose, had he succeeded, to proclaim a republic in London and establish Sir Francis Burdett, as a popular idol, at its head. On the death of Mrs. Coutts (duchess of St. Albans), his daughter, Angela Georgiana, born April 25, 1814, inherited her vast property, assumed the name of her benefactor, and, as Miss Burdett Coutts, became equally distinguished for her wealth and the liberal use of it.

BURDON, WILLIAM, an English writer on philosophical subjects. His work, entitled "Materials for Thinking," supplied Colton with many of the materials of his "Lacon." He also published "Thoughts on Politics, Morality, and Literature." He died in 1818.

BURDWAN, a district of British India, enclosed by the districts of Beerbhoom, Nuddea, Hoogly, and Bancora; area, 2,224 sq. m.; pop. 1,854,152. It is a rich, level country, abundantly watered by the Hadjee, Dummolah, Bhagruttee, &c., but subject to inundations. The climate is sultry but healthy. The lands are highly cultivated, and produce sugar, indigo, tobacco, cotton, rice, potatoes, betel, &c. Sugar refining is extensively and skillfully carried on. Coal and iron are found in considerable quantity and exported to Calcutta, but a large part of these

products, though bearing the name of Burdwan, is really brought from the adjacent district of Benares. The other exports are hides, horns, timber, lac, and silk. The native landowners, or zemindars, are usually very rich, and many of them reside at Calcutta, leaving the management of their estates to agents. The chief of these proprietors is the present titular rajah, a part of whose immense wealth has been devoted to the advancement of education. A school in Burdwan, the extension of a branch of the medical college, and several scholarships in the Hindoo college, owe their foundation to his liberality. The great military route, denominated the great trunk road from Calcutta to Benares and the North-West Provinces, passes through this district, which is also intersected by the unfinished railway from Calcutta to Rajmahal, and by the branch railway from Burdwan to the coal mines of Raneejunje. Burdwan was formerly an independent state, and was acquired by the E. I. company under the treaty with Meer Cossim in 1760. The cession was confirmed by the emperor Shah Alum in 1765.—BURDWAN, the capital of this district, is situated on the left bank of the Dammodah, 74 miles N. W. of Calcutta; pop. 54,000. It consists mainly of a crowded assemblage of wretched mud houses, with no temples of much elegance, and few handsome buildings of any sort. The residence of the titular rajah is a collection of various-colored houses surrounded by gardens, and remarkable for size and want of symmetry. The town contains English government and military schools, the residences of the European civil functionaries, and factories of silk and cotton. In the vicinity are indigo works, and an artificial pool surrounded by an ornamented portico, much resorted to by bathers.

BUREAU, a county of Illinois, N. W. of Illinois river, which is here navigated by steamboats. The surface is but little elevated, and the soil is generally fertile. Timber is scarce. Small groves are scattered over the surface, but there are no forests of considerable magnitude. Indian corn, wheat, oats, hay, and dairy produce, are the staples. In 1850 the productions were 542,823 bushels of Indian corn, 171,402 of wheat, 119,048 of oats, 9,428 tons of hay, and 151,410 pounds of butter. There were 6 corn and flour mills, 2 newspaper offices, 18 churches, and 1,473 pupils attending public schools. Area, 800 sq. m.; pop. in 1855, 19,518, an increase since 1850 of 10,677; capital, Princeton. The Chicago and Rock Island, and the Chicago, Burlington, and Quincy railroads intersect the county.

BURET, EUGÈNE, a French writer, born at Troyes in 1811, died at Saint Leu Taverny in 1842. In 1840 he wrote a dissertation on pauperism, upon which a prize was conferred by the academy, and subsequently published in England as important paper upon the misery of the laboring classes in France and England. He spent some time in Algiers, and wrote a valuable volume upon that country.

BURETTE, a chemical instrument used for dividing a given quantity of any liquid into 100 or 1,000 parts.

BÜRG, JOHANN TOBIAS, a German astronomer, born at Vienna Dec. 24, 1766, died at Wiesena, near Klagenfurth, Nov. 25, 1834. He was for 8 years assistant in the observatory at Vienna, and afterward professor at Klagenfurth. In 1798 the French institute proposed an astronomical question, and required that its solution should be based upon at least 500 observations. Papers of great merit were presented by Bürg and by Alexis Bouvard, and the judges were at a loss between claims so nearly equal. The difficulty was settled by Napoleon, who contributed the amount of 8,000 francs for a second prize. The most important publications of Bürg were upon the subject of the lunar motions.

BURGDORF (Fr. *Borthoud*), a town of Switzerland, on the Emmenthal. It is the entrepot for the linen goods and cheeses of the Emmenthal. The castle which stands here was formerly a place of great strength. Pestalozzi resided from 1798 to 1804 in the chateau of Burgdorf, and converted it into an educational institution. In the vicinity are the baths of Sommerhaus. Pop. 3,700.

BURGER, FRIEDRICH, baron, Austrian governor of Lombardy, began life as a lawyer in Gratz, and having subsequently rendered signal services to the Lloyd's steamboat company of Trieste, he was sent in 1848 as delegate of that city to the Frankfort parliament. He soon relinquished his seat, and, returning to Austria, was appointed attorney-general at Trieste, and in 1850 governor of Styria. Successfully overcoming the prejudice attaching to him as a commoner, and adopting the policy of his friend Bach, the minister, he gave much satisfaction to the government, and was promoted in 1851 to the office of governor of Lombardy, the title of baron being conferred upon him April 22, 1854.

BURGER, JOHANN, a German writer upon rural economy, born Aug. 5, 1773, at Wolfsberg, in Carinthia, died Jan. 24, 1842. He introduced the culture of maize, and the use of improved agricultural implements, among which was the horse-hoe or cultivator. In 1808 he was appointed professor of agriculture in the lyceum at Klagenfurth, where he remained for 12 years. His most important work was a "Hand-book of Agriculture," published in 1820.

BÜRGER, GOTTFRIED AUGUST, a German poet, born at Wollmerswende, near Halberstadt, Jan. 1, 1748, died in Göttingen, June 8, 1794. Educated by his father, a Protestant minister, he evinced a remarkable talent for poetry. He left the school of Ascherleben in consequence of a severe punishment, incurred on account of a comic poem, and that of Halle because theological studies did not agree with his romantic disposition. He now chose the law, and went to Göttingen, where he found a circle of congenial spirits, the 2 counts of Stolberg, Voss, Hölty,

and others, with whom he formed the romantic *Hainbund*, and pursued the study of foreign poetry, both ancient and modern. There he wrote his popular ballad *Lenore*, which made him one of the favorites of the German nation. In 1772 he obtained a small office, and his grandfather now assisted him with money; but a part of this was embezzled, and a series of bitter embarrassments followed. Love and marriage, however, were the chief sources of grief and sufferings for the poet. Three times married, his conjugal life was destroyed by romantic passion, death, and divorce. Appointed at Göttingen as professor without salary, he labored by writing and translating to earn bread for his children, and even the consolations of poetry and fame were envenomed by the severe criticism of Schiller. Death, however, soon gave him rest. His poetical works are distinguished by genial force and melodious versification. They bear the stamp of an ardent and passionate, but honest soul. Schiller found them wanting in the ideal element. His *Lenore*, *Lied vom bravem Manne*, &c., rank among the best productions of their kind. Renowned authors of other countries, among others Walter Scott and the great Polish poet Mickiewicz, in his beautiful *Uciotka*, have imitated him.—His first wife died in 1784. Bürger married then her sister Molly, who had been long before the object of his devoted love, and whom he celebrated with poetical enthusiasm in his writings. Molly died in 1786.—ELISE BURGES (Maria Christine Elizabeth Hahn), the poet's third wife, born in Stuttgart, Nov. 19, 1769, died in Frankfort-on-the-Main, Nov. 24, 1838. Fascinated with Bürger's genius, she addressed a poem to him expressive of her love and admiration. They were married in 1790, but divorced 2 years afterward. Elise was as brilliant as she was sentimental, became in turns actress and improvisatrice, and wrote several dramas, a novel, and a volume of poetry.

BURGES, TRISTAM, an American statesman and orator, born in Rochester, Mass., Feb. 26, 1770, died in Providence, R. I., Oct. 13, 1853. His father, John Burges, entered the army as a lieutenant in 1775, with the intention of remaining in it during the war, but a severe illness, from which he never fully recovered, obliged him to resign in a few months. He was a farmer of moderate means, and in winter worked at his trade as a cooper. With a large family of 3 sons and 5 daughters, and at a period when schools, even in New England, were few, he was unable to give his children the advantages of an early education. Tristam, the youngest of the sons, was obliged to assist his father on the farm and in the cooper's shop. His eldest sister taught him to read, his father instructed him in writing and arithmetic, and from a friendly sea-captain he learned a little navigation. When 15 years old he attended a school in the vicinity for 6 weeks, and again the next year for 6 weeks more. This was all the instruction he received from others until

he reached the age of 21. But he was a great reader, perusing every book within his reach, and devoting his leisure hours to composition and other modes of self-improvement. At 21 he commenced the study of medicine, and entered the academy at Wrentham, Mass., to prepare for college. A severe illness soon obliged him to leave this situation, but his determination to acquire a liberal education could not be repressed. He returned to the academy in the autumn, and was again called home by the death of his father. With rigid economy, and by teaching school a few months in the winter, he was enabled to return to Wrentham in the spring of 1792. Here his fine oratorical powers were first cultivated by a course of self-discipline not unlike that which the great master of Grecian eloquence employed to remedy a defect of nature. Although very fluent in conversation, yet whenever he rose to speak at the school exercises he would stammer and hesitate to such a degree that his friends deemed it impossible for him ever to acquire the power of oratory. But his energy and ambition were unconquerable. Near the village was a dense forest, within which he found a small cleared space, where, in solitude, he daily practised declamation, carefully studying every tone and movement, until he had mastered his hesitation, and acquired a natural and easy style of delivery. In Sept. 1793, he entered Rhode Island college, now Brown university, at Providence, and graduated 3 years later with the first honors of his class. He then taught a school in Providence for more than a year, at the same time pursuing the study of law, and was admitted to practise in 1799. The bar of Rhode Island at that time was eminent for the eloquence and legal ability of its members. It was a trying field for the young advocate, and a fitting arena for the exercise of his noblest powers. He soon won the distinction which legal acumen and commanding eloquence cannot fail to confer. His practice became extensive. The power of his oratory and the clearness of his arguments were confessed by all who heard him. In 1801 he married a daughter of Welcome Arnold, an opulent merchant of Providence. Mr. Burges soon became a leader of the federal party, and in 1811 was elected to a seat in the state legislature. In 1815 he was made chief justice of the state. The triumph of the republican party the next year removed him from this important trust. He was shortly afterward made professor of oratory and belles-lettres in Brown university, which place he filled with great success until his election as a representative in congress in 1825. He took his seat in December of that year, and almost immediately achieved a national reputation by his splendid speech on the judiciary, which was pronounced by a veteran member of the house to be "one of the greatest displays of eloquence ever heard in this hall." In 1827 he was re-elected without opposition. As chairman of the committee on military pensions he made a

report and submitted a bill proposing a system of pensions for the surviving soldiers of the revolution, and including also the widows of those who had died before this national debt of gratitude was acknowledged. The woollen bill in 1838 initiated a series of debates upon the tariff, which lasted for 5 years. It was in the course of this protracted controversy that Mr. Burges made many of his most brilliant efforts in defence of the American system; and it was in repelling the attacks made upon him by the opponents of protection that his luminous logic and his terrible sarcasm won for him an unrivalled reputation as a perfect master of the great art of intellectual gladiators. There was scarcely a question of any importance, that arose during the 10 years of his congressional career, which Mr. Burges did not illustrate with his convincing logic, his persuasive eloquence, or his blighting satire. In 1833 he was again elected, for the 5th and last time, at a period when the doctrine of nullification was agitating the country. His views on this subject were fully and fearlessly expressed. It was the only point upon which he sustained the course of President Jackson. He opposed the compromise tariff bill of Mr. Clay, when it came down to the house, with a vehemence natural to his character. This opposition, doubtless, caused his defeat in 1835, when the democratic republican party obtained the power in Rhode Island. He never again took part in public affairs, but cultivated his farm near Providence until his death, which occurred in the 84th year of his age. In the style of his writings and speeches Mr. Burges was ornate and peculiar. The richness of his classical and scriptural illustration was beyond that of his contemporaries. The sentences of his logic was felt and admitted by his opponents. He is better remembered for his unequalled sarcasm, probably because that was a sphere in which he had many competitors, and wherein he was usually the victor. But the brilliancy of his scholarship, the beauty of his allusions, the exquisite ornamentation of his more finished efforts, these are points that give him a far higher title to remembrance than the deadly thrusts of a satire in which he had no equal.—A memoir of Tristram Burges, with selections from his speeches and occasional writings, by Henry L. Bowen, was published in 1835.

BURGESS, GEORGE, D. D., bishop of the Protestant Episcopal church in the state of Maine, born in Providence, R. I., Oct. 31, 1809. After graduating at Brown university, and holding a tutorship in that college, he travelled in Europe, and studied for 2 years in the universities of Göttingen, Bonn, and Berlin. He was rector of Christ church in Hartford from 1834 to 1847, when he was consecrated bishop of the diocese of Maine, and became, at the same time, rector of Christ church in Gardiner. The duties of both offices he has since fulfilled with great acceptance and ability. He has published 2 academic poems, a metrical version

of a portion of the Psalms, "Pages from the Ecclesiastical History of New England," a curious treatise on death, entitled the "Last Enemy, Conquering and Conquered," a volume of "Sermons on the Christian life," and a valuable discourse delivered in 1854 before the Maine historical society. His style is remarkable for its sterling and sober vigor.

BURGESS, THOMAS, bishop of Salisbury, Eng., born at Odiham, in Hampshire, Nov. 18, 1756, died in Salisbury, Feb. 19, 1837. His father carried on business as a grocer, and his brother removing to London, where he had an establishment in the Strand, long the depot of "Burgess's sauce," amassed a large fortune there. Thomas Burgess was educated at Winchester, obtained a scholarship at Oxford at the age of 20, and became logic reader and fellow and tutor of his college. He obtained a prize for an "Essay on the Study of Antiquities," and published a "Treatise on the Origin and Formation of the Greek Language." Mr. Addington, who had been his fellow student at Winchester and Oxford, became prime minister in 1801, and appointed him bishop of St. David's in 1808. He was translated to the much richer see of Salisbury in 1825, which he retained until his death. He was mainly instrumental in founding the royal society of literature, of which, in 1821, he became first president, an office which he resigned to Lord Dover in 1832. Among his numerous works are editions of Burton's "Pentalogia" and Dawes's "Miscellanea Critica," "Considerations on the Abolition of Slavery," "First Principles of Christian Knowledge," and many others, theological, classical, and political.

BURGH, JAMES, a Scotch writer, born at Madderty, in Perthshire, in 1714, died Aug. 26, 1775. Proving unsuccessful in business, he went to London, where he was employed for one year as a corrector of the press. He then engaged as assistant in the grammar-school at Marlow; after which, in 1747, he opened a school on his own account at Newington, which he continued for 22 years. While at Marlow he published his "Britons' Remembrancer," which passed through 4 large editions in less than 2 years. It was published anonymously, and its authorship was ascribed to some of the chief dignitaries of the church. He published numerous political pieces, and was, during many years, a frequent contributor to periodicals. His principal writings were "Thoughts on Education," "Political Disquisitions," the "Dignity of Human Nature," "Crito, or Essays," and a Utopian romance under the title of the "Settlement, Laws, Government, &c., of the Cessarea, a people of South America."

BURGLARY (Law Lat. *burgi latro*, one who breaks into a house or enclosed place; Sax. *husbrea*, a house-breaker); in old English law called Hame-seeken, as it still is in Scotland, the crime of breaking into a dwelling-house or building connected therewith, at night, with intent to commit a felony. Formerly it included

breaking into a church, because, as explained by Lord Coke, the church is *domus mansio-nalis Dei*; so, also, according to Spelman, it included the breaking the gates or walls of a town, which might in like manner have been said to be the mansion of the garrison or corporation. But, by the English statutes now in force, burglary is limited to the breaking into a dwelling-house; the breaking into a church is also made an offence, but not under this designation. To constitute burglary it is held: 1. That the house broken into must be a place of actual residence; yet, if it is habitually occupied, the fact that no one was in the house at the time of breaking into it will make no difference in the character of the offence. An outhouse, if immediately connected with the dwelling, is deemed a part thereof, so as to make the offence of entering it the same; and in England this rule has been extended to barns, stables, &c., though not under the same roof with the dwelling-house, or contiguous, provided they are in a common enclosure, called curtilage. So also a room in a private house which the lodger occupies as his own independent of the control of the proprietor of the house, or a room in a college or inns of court, is in law deemed the mansion of the occupant, and the breaking into it would be the same as the breaking through an outer door. But in a hotel or boarding house, where the apartments are under the management of the proprietor of the house, and there is a common entrance to them, the whole constitute but one mansion. 2. There must be an actual breaking, as opening a door or window; for, if found open, the entering thereby would not be burglary. But the mere lifting the latch of a door, or the shoving up a window which has no fastening, would be burglarious—much more the picking of a lock or removing any fastening. The breaking of an inner door, when an entrance has been made through an open outer door or window, would, however, be burglary; so, also, knocking at a door, and upon its being opened, rushing in with felonious intent. 3. It must be in the night, not by day. The peculiar criminality of the offence is the supposed danger to life. The English rule is, that if there is daylight enough to distinguish a man's face, the entering of a house will not be burglary. This does not include moonlight, for the offence is not so much that it is done in the dark as at an hour when the inmates of the house would be unguarded. In the state of New York, burglary in the 1st degree is defined to be "the breaking into and entering in the night time the dwelling-house of another in which there shall be a human being, with intent to commit some crime." Breaking into a house in the day time, under circumstances that would at night have constituted burglary in the 1st degree, is declared to be a burglary in the 2d degree. So, also, the entering by an open door or window at night and breaking an inner door with intent to commit a crime. Breaking into an out-building not forming a part of a dwelling-house,

or into a shop, warehouse, &c., with intent to steal, is burglary in the 3d degree. The punishment of burglary is various in the different states—usually imprisonment in state prison for a term of years.

**BURGOMASTER** (Ger. *Bürgermeister*, chief of the citizens), in German and Dutch towns, the chief executive municipal officer; in France called *maire*; in England, mayor. Burgh is synonymous with borough; a burgess is the holder of a tenement in a borough.

**BURGET**, the upper part or ridge, above the crown-piece or curvilliere of the ancient helmet of the man-at-arms, upon which the heraldic crest of the knight's family, or, if he was royal, of his kingdom, was attached, and to which a panache of feathers was sometimes superadded. Hence burget is, sometimes, used to signify the heraldic crest itself; and, at other times, the entire knightly casque, so crested.

**BURGOS**, a Spanish city, and capital of the province of the same name, formerly the capital of Old Castile. Pop. in 1852, 15,924. Its origin is uncertain, probably not older than the 7th or 8th century. It is an irregularly built city, in the form of an amphitheatre, on the banks of the Arlanzon, over which there are 3 stone bridges. The environs are delightful, and the city has an ancient and picturesque appearance. In the upper part of the town are still shown the arch and mausoleum erected to the memory of Gonzalez and the Cid. The cathedral is a fine Gothic structure, and contains the tombs of many old knights and kings. The town hall is also worthy of notice. A court has existed here since 1835, forming a branch of the chancery of Valladolid. There are a university, a college, a public library, a theatre, a museum, and an archiepiscopal seminary. There are about 80 looms employed in making woollen goods, 140 looms in linen goods, 14 shops engaged in the manufacture of saddles and bridles, 7 hat manufactories, 14 flour mills, 3 chocolate mills, a spirit manufactory, and a large paper mill and hardware factory in the suburb of Vega. Statues of Gonzalez, Alonso III., Enrique III., and Fernando I., are on the Espolon, a charming walk. Burgos was in former times renowned for its great number of churches and convents but the church of San Ildefonso is now a depot of artillery, San Agustin is an inn, San Juan Bautista a prison; the famous monastery of Frex del Val, has been sold to a contractor for the materials, and Trinidad and San Francisco and others, are pulled down. Burgos was the scene of an engagement, March 10, 1808, in which Soult defeated the Spaniards. It was also besieged twice by Wellington, and on each occasion suffered the horrors of an assault.

**BURGOS**, FRANCISCO XAVIER DE, a Spanish statesman and author, born at Motril, in Granada, Oct. 22, 1778. He studied first theology and then law, and under King Joseph Bonaparte, in 1810, was appointed sub-prefect

Almeria. He fled to France in 1812, on the return of Ferdinand VII. to Spain, and devoted his leisure to making a translation of Horace. In 1824 he was made agent to effect a government loan at Paris, and concluded the business with the banker Griebhard in a way to secure his own fortune. He was recalled from Paris in 1827, and became in 1833 minister of the interior, and afterward of finance; but was removed from the ministry by the influence of Martinez de la Rosa. He was accused by Gen. Alava of maladministration in contracting the loan, and although a committee of investigation declared him innocent of the charges, he yet wholly withdrew from public life. He lived in Paris till 1839, where he occupied himself with writing his yet unfinished "History of the Government of Isabella II.," after which he returned to Granada. He has published 8 comedies, a few poems, and a variety of miscellaneous articles on literature, the arts, and commerce.

BURGOYNE, JOHN, an English general, born about 1780, died in London, June 4, 1792. An illegitimate son of Lord Bingley, he entered the army at an early age, and, while a subaltern, made a runaway match with a daughter of the 11th earl of Derby. In a short time the earl received his son-in-law into favor, settled £300 a year on him (beside leaving him a legacy of £25,000 at his death, in 1776), and used the family interest to push him on in the army. He served in Portugal with much credit, as brigadier-general, in 1762. He sat in parliament, from 1761, for the borough of Midhurst. In 1768 he contested the borough of Preston at an expense of £10,000, and for excesses which, it is said, his partisans committed, was prosecuted and fined £1,000. In the letters of Junius he was severely dealt with, on account of his presumed political connection with the duke of Grafton. In 1772, on his motion, parliament appointed a committee of inquiry on Indian affairs, and in the following year he moved, unsuccessfully, for a vote of censure on Lord Clive. In 1775 he was appointed to a command in America, where the war of independence was just commenced. He witnessed the battle of Bunker hill. In 1776 he returned to England, and had a long conference with George III. on colonial affairs. In 1777 he was appointed to lead the army which was to penetrate from Canada into the United States, in which the Americans threw in his way difficulties which he could not overcome. At last, the Americans, under Gates and Arnold, surrounded him, while he was encamped at Saratoga, and compelled him to capitulate, with the whole of his army. The news of this surrender was indignantly received in England. Returning thither on parole, in May 1778, he was ill received. The king refused to see him. A court-martial which he demanded was refused, on the plea that, according to precedents, a prisoner on parole could not be tried. He published a narrative, which cleared away some of the prejudice against him, and

ably vindicated himself in parliament, attributing the disasters in the war to Lord G. Germaine, the American secretary. He threw himself into the arms of the opposition, and a ministerial attempt was made to exclude him from the house of commons, on the pretence that as a prisoner of war he had no right to speak or vote, but the speaker decided in his favor. He then resigned all his appointments. At the close of the American war, when a change of ministry took place, he was restored to his rank in the army, appointed commander-in-chief in Ireland, and sworn in as privy councillor. Two years afterward he retired from professional life, devoting himself almost wholly to literature. In 1774 he had written a vaudeville, the "Maid of the Oaks," to be performed at Lord Derby's suburban seat (the Oaks), near Epsom. In Jan. 1780, he produced a comic opera, "The Lord of the Manor," taken from the French, and still a stock piece. In 1786 he wrote the comedy of "The Heiress," which is occasionally performed yet. These were his principal dramatic productions. He contributed 2 pieces to "The Rolliad." He was one of the house of commons managers for impeaching Warren Hastings, but died ere the trial was concluded, from an attack of the gout. His plays and poems were collected and published in 2 volumes in 1808.

BURGOYNE, SIR JOHN FOX, British general, born about 1782. He entered the army in Aug. 1798, as second lieutenant of engineers; served at Malta, in Egypt, in Sicily, and in Sweden, from 1800 to 1807; was with Sir John Moore in the peninsula in 1808, under Wellington from 1809 to 1814, and was present at the principal battles, and at all sieges; conducted those of Burgos and San Sebastian; and was twice wounded. In 1814-'15 he was engineer-in-chief of the attack on New Orleans, and was sent to Portugal in the same capacity in 1826. He was made colonel in 1830; appointed chairman of the board of public works in Ireland in the same year; created knight of the bath; made major-general in 1838; appointed inspector-general of fortifications of England in 1845; sent to Ireland as head of the famine-relief commissioners in 1847; placed at the head of the metropolitan commission of sewers (for the drainage of London) in 1841; made lieutenant-general in 1851; advanced as knight grand cross of the bath in 1852; sent to Turkey in 1854, to provide for the defence of Constantinople, and free passage through the Turkish waters; returning to England, he was despatched to the Crimea as chief of the engineering department against Sebastopol; was present at the battles of the Alma, Balaklava, and Inkermann. In 1855, in consideration of his long services and advanced age, he was recalled, Sir Harry Jones succeeding him, but at the pressing request of Lord Raglan, the commander-in-chief, remained 3 months longer with the army. In 1855 the sultan bestowed on him the order of the Medjidie, and he was created a baronet in 1856. The celebrated letter of the



duke of Wellington, showing how ill prepared England was for war and against invasion, was addressed in 1847 to Sir John Burgoyne, then inspector-general of fortifications.

BURGUETE, a town of Spain, in the valley of Roncesvalles, Navarre, memorable for the defeat of a part of Charlemagne's army, under Roland, in 778.

BURGUNDIANS, or BURGUNDII, the name of a primitive German race, a branch of the Goths, whose original territory lay between the Oder and the Vistula, from which they were driven out by the Gepidæ. They settled on the shores of the Rhine and Neckar, and in A. D. 407, joining the Suevi, Alani, and Vandals, who invaded the country, they formed part of an army of 80,000 men, which, under the command of King Gundicar, penetrated into Gaul, settling between the Aar and the Rhone, and setting up the Burgundian empire, which lasted till A. D. 534, when King Gondemar lost his life in the battle against the Franks, who took possession of Burgundy. One of Gondemar's predecessors, Gundebald, was the author of the *Lex Gundebaldi*, and a subsequent Burgundian king, Sigismund, embraced Catholicism. The Christian doctrine which first obtained among the Burgundians, and to which they became converts shortly after their arrival in Gaul, was that of the Arians. One of their kings, Gundicar, was the first who endeavored to stem the progress of Attila; but he, and his army of 10,000 men, became victims of their bravery, and died to the last man on the battlefield. The description of the brilliant career of this heroic race forms one of the most remarkable passages of the *Nibelungenlied*.

BURGUNDY (Fr. *Bourgogne*), the name of 8 kingdoms varying somewhat in extent and locality, of a feudal duchy, and lastly of a French province. I. THE FIRST KINGDOM OF BURGUNDY was founded about 418 by the Burgundians, a German nation, who, after leaving the country between the Oder and the Vistula, wandered through Germany, and finally settled in the S. E. of Gaul. These peaceful conquerors gradually extended their dominion all over the valleys of the Saone and the Rhone, their possessions being bounded N. by the Rhine, the Faucilles mountains, and a winding line falling in a S. E. direction to the Loire; E. by the Alps and the Reuss river; W. by the upper Loire, Ardèche, and lower Rhone; S. by the Mediterranean sea. Consequently they included the provinces of France known afterward as Burgundy, Franche-Comté, Lyonnais, the N. E. part of Languedoc, Dauphiné, and Provence, with the western parts of Switzerland and Savoy. About the year 500, the Frankish king, Clovis, impelled by his wife Clotilde, a Burgundian princess, desirous of avenging her father's death, invaded Burgundy, and imposed a heavy tribute. Some 80 years later, the sons of Clovis conquered the kingdom, which, in 534, became a part of the Frankish empire. It, however, preserved its name and

national laws, and more than once had Merovingian kings of its own. II. CIBJURANE AND TRANSJURANE BURGUNDY. The Frankish dominion over Burgundy had lasted 84 centuries, when the dismemberment of the Carolingian empire occurred, and Burgundy was among the first to assert its independence. In 879, a number of bishops and noblemen assembled for that purpose, and conferred the crown upon the count of Vienna, Boson, a mild and prudent prince, brother-in-law of Charles the Bald of France. The new king was crowned at Mantaille by the archbishop of Lyons, and his kingdom, from its situation in respect to France, was called Cijurane, and sometimes Lower, Burgundy, consisting of western Franche-Comté, southern Savoy, Dauphiné, and Provence, with a part of Lyonnais. A little later, Count Rudolph of Upper Burgundy founded a 2d kingdom of Burgundy, the Transjurane, formed of western Switzerland to the Reuss, eastern Franche-Comté, and northern Savoy. The 2 kingdoms were united in 980, but not integrally, under the name of the kingdom of Arles, which continued for about a century. Meanwhile the kings of Arles or Provence, as they were also called, being unable on account of their weakness to contend successfully against the growing power of their nobles, were obliged to acknowledge the supremacy of the German emperors. Consequently, on the death of Rudolph III., in 1032, the emperor Conrad II., as lord paramount, took possession of the kingdom, so that the S. E. part of France became one of the provinces of the German empire. It was now governed by imperial vicars; but in the beginning of the 14th century, the various provinces of which it consisted separated; some, like the Swiss cantons, asserting their independence, others acknowledging the power of their own feudal lords, but most of them going back to the French kings. III. DUCHY OF BURGUNDY, 1st ducal house. While these kingdoms were passing through these revolutions, the N. W. part of old Burgundy had remained united to France, and formed one of its great feudal provinces. We find, in the 10th century, the duchy of Burgundy belonging to Henry, brother of Hugh Capet, the first king of the 8d dynasty, and a little later, to the 2d son of Robert the Pious, of France. This prince, who died in 1075, was the head of the first ducal house of Burgundy, which lasted till 1861. His successors, 11 in number, were among the 12 peers of France, and rivalled the most powerful princes of their times. They increased their family inheritance, especially by the annexation of the county of Burgundy or Franche-Comté, one of the provinces dismembered from the kingdom of Arles, and were beside, during the 13th and 14th centuries, possessors of a kingdom and 2 principalities in the East. They proved singularly constant in their loyalty to the French kings. Several of them engaged in crusades, especially Hugues III. and his grandson Hugues IV., each of whom twice

visited the Holy Land. The latter accompanied Louis IX. in his expedition to Egypt, participated in his captivity, and was liberated with him. By a treaty with Baldwin II., emperor of Constantinople, he became himself king of Salonica, which title remained for years in his house. Endes IV., the last but one of the family, beside that kingdom had also the principalities of Achaia and Morea.—**SECOND DUCAL HOUSE.** On the death of Philip de Rouvre, the last of the preceding family, the duchy of Burgundy reverted for a short time to the crown of France. King John, being desirous of rewarding his 8d son, Philip, surnamed the Bold, who had fought gallantly by his side in the battle of Poitiers, resolved to bestow this rich inheritance upon him. John's bequest was honorably executed by his son and successor, Charles V. of France; and on June 2, 1364, PHILIP received the investiture of his duchy. He soon married Margaret of Flanders, who, on the death of her father, brought him the countries of Flanders and Artois, beside several other rich possessions. Philip at once gave evidence of his power and wealth by contributing largely to the organization of the army which, in 1396, was sent to assist the Hungarians against Sultan Bajazet. John, count of Nevers, heir of Burgundy, a young man, was appointed to command the expedition, the real chief of which was the celebrated Enguerrand VII., lord of Coucy. The army was destroyed by the Turks at Nicopolis, young John being taken prisoner, and his father had to pay very large sums for his ransom, which circumstance obliged him to tax his subjects heavily. Philip the Bold had also to conduct the government of France during the minority and afterward insanity of his nephew, Charles VI. By his prudence the calamities of civil war were for a time avoided; but the unceasing want of money to meet his extravagant expenditures, both private and public, forced him frequently into measures not conducive to national welfare. On his death, the treasury was empty, so that his sons had to sell his plate to defray the expenses of his funeral. He died in 1404, generally regretted, not on account of the good he had done, but because every one foresaw what commotions and misfortunes were to be the consequences of his death.—**JOHN THE FEARLESS**, his successor, took immediate measures to procure for himself the same influence as his father had possessed in the government of France, but was opposed by the queen, Isabella of Bavaria, and the duke of Orleans, brother of the king. In the fury of civil contest, John hired assassins to murder his rival, and the duke of Orleans fell a victim in the very midst of Paris. Such, however, were the power of the duke and the spathy of the times, that he would probably have obtained a justification of his conduct from the court, had he not been obliged to retire to his territories to quell an insurrection of the citizens of Liège; the partisans of Or-

leans took advantage of his absence to call for justice, and being joined by all the enemies of Burgundy, they soon formed a very powerful faction. But John held out successfully against them; therefore they concluded that, to get rid of him, there was no other means than that he himself had resorted to. A plot was devised for his assassination. Ambassadors were sent, in 1419, to invite him to an interview with the dauphin on the bridge of Montereau, in order that they might together concert measures for the defence of the kingdom. He went to the appointed place with a very scanty train, armed only with such weapons as gentlemen of the period usually wore on visits of ceremony. He had been scarcely introduced to the dauphin, when some high words were exchanged, upon which the partisans of young Charles, who were all Orleanists or Armagnacs, raised the cry of treason, and immediately struck the defenceless John down by axes and swords, his companions being also mercilessly butchered.—**PHILIP THE GOOD**, his son and successor, was eager to avenge his murder, and he unhesitatingly entered into alliance with Henry V. of England, and recognized him as the legitimate heir to the crown of France, on condition that Charles VI. should not be deprived of his regal dignity during the remainder of his unhappy existence. The war between the English and French now became identified with the feud between the Burgundians and Armagnacs, and was marked on both sides by shocking atrocities. For 16 years Philip held to his unflinching desire of vengeance against the dauphin, now become King Charles VII.; but at last the miseries of France, the entreaties of the pope, and perhaps the remembrance of an appeal addressed to him by Joan of Arc, mollified his heart; consequently he opened negotiations with the king, which resulted in a reconciliation in 1435. From that time the tide of prosperity flowed in favor of the French, who gradually expelled the English from their territory, and the assistance of the duke of Burgundy largely contributed to this result. Meanwhile he devoted himself to the improvement of his dominions in the Low Countries. His brilliant court realized the visions of chivalry; the jousts and tournaments given under his sanction surpassed in magnificence any that had yet been witnessed in Europe; the wealth of the commercial cities in Flanders was freely poured forth to defray the expenses, and noble knights from all parts of Europe flocked to the court of Burgundy. Philip was the most respected sovereign of his time; he had nothing to fear from his most powerful neighbors; he generously welcomed at his court the dauphin Louis, then an exile from France; encouraged the artists and learned men; instituted the order of the golden fleece on the occasion of his marriage with Isabella of Portugal, and evinced wisdom as well as liberality. He purchased the county of Namur, inherited the duchies of Brabant

and Limbourg, and obtained by treaties the counties of Hainault, Holland, Zealand, and Friesland, as well as the duchy of Luxembourg. By these acquisitions he became a more powerful sovereign than his suzerain the king of France himself; and certainly, if he had wished it, could have assumed the title of king and asserted his entire independence. But he was satisfied with the consciousness of his power, and, during the 48 years of his reign, he had the gratification of seeing Burgundy the most wealthy, prosperous, and tranquil of all the states of Europe. He died in 1467; and the grief for his loss was increased by the dread which the character of his successor inspired.—**CHARLES THE BOLD**, who, as count de Charolais, was noted for his rashness, pride, obstinacy, and cruelty, more signally manifested the same qualities as soon as he became duke of Burgundy, and his entire career was but a succession of daring follies and rash eccentricities that finally brought him to destruction. Another misfortune was that he had to deal with the cunning and unscrupulous Louis XI. This shrewd prince knew too well how to incite the fury of that mad bull, as he used to call his cousin of Burgundy. The whole life of Charles was but an open or secret conflict against Louis. The latter was instrumental in the rebellion of several cities in the Low Countries, which the duke soon reduced and severely punished. In revenge he entered the "league of the public weal," which had been formed against Louis XI. by some discontented French princes, and forced him into a disadvantageous treaty at Conflans. The king, however, did not discontinue his intrigues, and the powerful city of Liège rebelled for the second time. Just at that moment, Louis, escorted by a feeble company of his personal retainers, was paying a visit to Charles at Péronne; on the intelligence of the new revolt of Liège, the duke kept his sovereign a prisoner, and swore that he would take his life. The crafty Louis succeeded partly in soothing his anger, but could only regain his liberty by submitting to the terms of peace dictated by the duke. The most mortifying condition of his liberation was that he should march in person against the insurgents, and thus aid his vassal in suppressing a revolt which he had himself secretly instigated. Meanwhile, Charles, who aspired to the royal dignity, and wished to obtain it from the emperor Frederic III., had become vicar of the empire in Alsatia. The haughty governor appointed by him over that province encroached upon the rights of cities, then the allies of the independent Swiss. These, fearing for their own safety, entered into an intimate alliance with Louis, and the young René II. of Lorraine, whom Charles had deprived of his duchy, and soon an important war broke out. Charles assembled a splendid army, consisting of 36,000 veteran soldiers, accompanied by the most formidable train of artillery that had yet been brought into the field, and invaded Switzerland. He first be-

sieged Granson, the garrison of which he ordered to be hanged, in spite of the terms of capitulation. The intelligence of this cruelty roused a desire of vengeance among the mountaineers who had flown to arms; they soon encountered the advanced guard of the duke, who was carelessly marching through the mountain defiles, and raising the war cry of "Granson! Granson!" they charged the Burgundians with the utmost intrepidity. The brilliant cavalry of the duke could not withstand the attack of the Swiss pikemen, and commenced a retreat which was at length converted into a precipitate flight. A panic dispersed the whole army of Charles, which left to the victors the richest booty that had been gained in war for several centuries. This defeat, which took place March 8, 1476, inspired Charles with such grief and rage that for weeks he was in a state bordering on insanity. At last he resumed his wonted spirits, and with unparalleled eagerness he attended to the recruiting of his army. Neither treasures nor efforts were spared to make it stronger than ever. The duke even had recourse to threats and violence to bring in soldiers from all his provinces; he moreover hired auxiliaries from France, Italy, and England. At last his troops were ready, and he marched from Lausanne toward Morat, which the Swiss had fortified, and in the vicinity of which their volunteers were slowly assembling. The town resisted with the utmost energy, and gave time to the Swiss to gather all their forces. They then advanced to its relief, and took a formidable position. The heedless Charles rushed to attack them, June 22, but was soon obliged to desist. His troops, assailed by a tempest of rain which injured their powder and relaxed their bowstrings, began to retire; when the Swiss pursued them with such ardor that the Burgundian army was completely routed, and Charles himself forced to flight. This second defeat was the death-blow to his power. The states of Burgundy, Flanders, and Brabant refused to grant him the enormous sums which he demanded to raise a 8d army, while the duchy of Lorraine, incited by René, attempted to resume its independence. Charles, however, by exhausting his last resources, succeeded in procuring some troops, and went to lay siege to Nancy. René, who had secured the city with a faithful garrison, proceeded to the Swiss cantons to solicit aid against their common enemy. Nancy, by a lengthened resistance, gave René time to accomplish his design. On Jan. 4, 1477, he reappeared before Nancy at the head of the Swiss confederates, attacked the Burgundians, and being helped by the treason of Campo-Basso, an Italian favorite of the duke, won the day. Charles himself was slain in a somewhat mysterious manner, and his body was found, after 2 days' search, lying in a rivulet covered with ice, and disfigured by wounds, some of which had every appearance of being inflicted by assassins. The death of Charles the Bold

was the end of the Burgundian dominion. Louis XI. at once seized on the duchy of Burgundy, Franche-Comté, Picardy, and Artois, as escheated French fiefs; he was, however, obliged to resign Franche-Comté, but managed to keep the other provinces. Mary, the heiress of Charles, married Maximilian of Austria, whence the pretensions of Austria to the ownership of the Burgundian provinces. The Low Countries and Franche-Comté were, however, all that it ever possessed. But the contests brought on by the conflicting claims were the origin of prolonged wars between France and Austria.—THE PROVINCES OF BURGUNDY. The duchy proper, from its reunion to France in 1477, became one of the most important provinces of the kingdom. It was, moreover, one of the most loyal. When Francis I., by the treaty of Madrid, agreed to give back to Charles V. all the provinces once belonging to the ducal house of Burgundy, the states of the province solemnly protested that they were French, and the king had no right to give up his subjects, if the latter were not willing to renounce their allegiance. This province has formed the departments of Côte d'Or, Saône-et-Loire, Ain, and part of Yonne. It was celebrated for its industry and commerce, but above all for its wines, which still preserve their ancient fame.

**BURGUNDY WINES.** These famous French wines, deriving their name from the ancient province of Burgundy, have a reputation superior to their popularity. They are nevertheless wines of delicious flavor and bouquet. It has been supposed that they would not well bear a sea voyage, but it is now settled that when transported to America and back, their quality is greatly improved. The most renowned red wines of Burgundy are Romané-Conti, Clos Vougeot, Chambertin, and Richebourg. Chambertin was the favorite wine of Louis XVI. and of Napoleon. Chablis, a white wine, has many admirers, but is inferior to the best growths of the Garonne and the Rhone. The annual produce of wine in Burgundy and Beaujolais is estimated at about 7,000,000 gallons, of which  $\frac{1}{4}$  is consumed in France and  $\frac{1}{2}$  are exported.

**BURL**, the name of a very valuable palm, found only in the Philippine islands. The trunk is used in the construction of dwellings; sugar and brandy are made from the sap; the long, tough leaves make excellent mats; the pith is made into cakes, equal to sago bread; the chaplets and rosaries of the converted natives are made from the seeds; and the spines and stems of the leaves yield a strong fibre, which is woven into a cloth called sagoron.

**BURIAL.** The natural tenderness felt by men for the bodies of those who were dear to them, as well as the necessity of removing from sight or contact objects which rapidly become offensive, has in all ages led to some disposition of the dead by which it was thought these ends could best be effected. Funeral rites, too,

have in all ages been interwoven with and consecrated by the ceremonies of religion; portions of these rites have often survived the people and the religion to which they owed their origin, and the threefold sprinkling with earth with which the Christian is consigned to the tomb, is handed down to us from the pagan Greeks and Romans. Three methods chiefly, at different times and in different countries, have been employed for the disposition of the dead: mummification, incineration, and interment. Mummification was practised by the Egyptians from the most remote period to the 6th century of the Christian era. They embalmed not only human corpses but those of various animals, as the ibis, the hawk, the monkey, the cat, together with those of the greater part of the animals that were known to them. This preservation of the bodies of the dead, through a series of ages, gave rise to an enormous multiplication of mummies. "All this," said an Arab to a French savant, showing, from the summit of the great pyramid, the immense plain which for the space of 60 square leagues extends about its base, "all this is mummy."—The Hebrews in general buried their dead, though, from a passage in Isaiah (chap. xxx., v. 38), it would seem that incineration was likewise practised. The cemeteries were invariably situated without the walls of the cities.—Among the Greeks, in historical times, the bodies of the dead were indifferently interred or burned, and a common word (*Sarrew*) is used for either method of burial. When the body was not burned, it was placed in a coffin made commonly of baked clay or earthenware, and buried without the town; intramural interment was forbidden, from the superstition that the presence of the dead brought pollution to the living. If burned, the body was placed upon a pyre built of wood, to which fire was communicated in the presence of those who had attended the funeral; when the flames were extinguished, the bones were collected and placed in urns made of various materials. These were preserved in tombs, built commonly on the roadsides without the city gates. The burial of the dead by the nearest related survivors was a sacred duty, and its neglect exposed them to grave accusations. After the funeral the family of the deceased partook of a feast at the house of the nearest relative, and at Athens the period of mourning continued 30 days, during which other sacrifices and feasts were celebrated. In the representation of these ceremonies on monuments, a horse's head is usually found in one corner, intended to represent death as a journey. The punishment of certain criminals was heightened by the denial of funeral rites, and there were places both at Athens and Sparta into which the bodies of such criminals were cast.—In the olden times of the republic the Romans generally buried their dead, though burning was likewise practised. Sylla appears to have been the first of the Cornelian *gens* who was

burned. Under the empire burning became customary, until it was subverted by the gradual spread of Christianity, and at the end of the 4th century it had again fallen into general disuse. The funeral rites varied not only with the wealth of the deceased, but somewhat, too, in different periods of the commonwealth. In the latter days of the republic and under the earlier emperors, the corpse of the man of wealth was washed, anointed with oil, and perfumed by the slaves of the undertakers, who, from residing near the temple of Venus Libitina, where all things necessary for funerals were sold, were termed Libitinarii. A coin was placed in the mouth of the corpse to pay its ferriage into Hades, and the body, dressed in the best robes it had possessed when living, was placed with its feet toward the door in the vestibule of the house. If the deceased had received an honorary crown, it was placed upon its head, the couch was often strewn with flowers, and a branch of cypress placed before the door. It was usual to set aside a sum in the will for the funeral expenses; if this had not been done, the heir provided for them according to the extent of the inheritance; when there were a number of heirs, the expenses were assessed upon them according to their respective shares. The funeral took place at night. The procession was headed by musicians; these were followed by hired mourners, who lamented and sang the funeral song; after these came the freedmen of the deceased, sometimes amounting to a considerable number, wearing the cap of liberty. Immediately preceding the corpse were persons bearing waxen masks representing the ancestry of the deceased; the corpse itself, placed upon a couch, was commonly borne by the freedmen or by the immediate relatives; the family followed after—the men, contrary to usual custom, with their heads covered, the women with their heads bare, their hair dishevelled, and often beating their breasts and uttering piercing cries. If warranted by the rank of the deceased, the procession passed through the forum, and an oration was there pronounced over the body. Finally, the corpse, with the couch upon which it was borne, was placed upon the funeral pyre, built commonly in the form of an altar, with four equal sides. The nearest relative, with averted face, kindled the pyre, and perfumes, oils, articles of food, ornaments, and clothing were frequently thrown on while it was being consumed. When the pile was burned down, the embers were extinguished with wine, the bones and ashes carefully collected by the nearest of kin, sprinkled with perfumes, and placed in an urn. The urns were of various forms and materials, and were buried in sepulchres common to those of the same family. After a funeral the mourning and sacrifices were continued for nine days, though by the women mourning was sometimes worn for a year on the death of a husband or father. As the Christian religion gradually obtained the

ascendency, a corresponding change took place in the mode of disposing of the dead; bodies were no longer burned but interred, and the offices of the church were substituted for the rites of paganism.—At a very early period it became customary to bury the dead in the immediate neighborhood of the churches, in grounds consecrated for the purpose. As the churches were always surrounded by a vacant space of greater or less extent, for a long time this practice was unattended by any evil effects; but in towns, as the population increased and interments became more numerous, the burial grounds often became entirely too small for the necessities of the public; under such circumstances, the accumulation of bodies in a limited space led, at each new burial, to scenes shocking to the feelings of the community, while the disengagement of gases resulting from their decomposition proved deleterious to the general health. In London, in some of the poorer districts, the soil of the churchyards was raised 2, 3, or even 4 feet in a few years, and in the immediate neighborhood of such burial grounds, epidemic diseases were both more common and more fatal. Within 80 years there had been interred in a space not exceeding 318 acres, 1,500,000 bodies. ("Report on a general Scheme of Extramural Sepulture," by the general board of health, London, 1850.) Beside the contamination of the atmosphere in the immediate neighborhood of burial grounds, accidents have occurred from the carbonic acid, given off in them during decomposition, breaking into the cellars of buildings in the neighborhood. This occurred several times in the cellars of houses in the immediate vicinity of the cemetery of the innocents at Paris, between the years 1774 and 1780.—The period it takes for the body to decay after inhumation varies greatly according to the climate, the nature of the soil, and the covering in which it is enveloped. Orfila and Lesueur in their experiments found nothing but the skeletons left of bodies that had been buried 14, 15, and 18 months; this period was, however, unusually short. Low, damp grounds, particularly when they are percolated by water, hasten decomposition; dry, high, and well-ventilated ones, on the contrary, retard it. When numerous burials, within a comparatively short period, have occurred in a limited space, the earth becomes saturated with the products of decomposition to such a degree as to be incapable of further absorbing them; decomposition under such circumstances is retarded, and its products escape directly into the atmosphere. On being left undisturbed for a few years, the earth recovers its previous powers of absorption.—**BURYING ALIVE.** The facts that persons have occasionally presented all the ordinary signs of death, yet have afterward revived, and that others have undoubtedly been buried as dead who were still living, have repeatedly drawn the attention of both individuals and government to the means necessary to guard against so terrible an occurrence. Winslow, the celebrator

anatomist, is said to have been twice nearly buried alive, and it was in consequence of this that he published a treatise on the signs of death, in which he comes to the conclusion that indications of incipient putrefaction are the only signs that can be relied on. Putrefaction, however, comes on at very variable periods, and it is not always convenient to wait for its occurrence. The rigidity of the muscles that supervenes after death is a sign scarcely less certain, but it is sometimes transitory in its nature. For these signs M. Bouchut proposes to substitute the careful exploration of the cardiac region by auscultation. During a fainting fit the heart is still heard to beat, and in the dying, after the last expiration has proclaimed that all is over, after the pulse has ceased to beat, and after the hand applied over the heart finds every thing still, the ear placed upon the same region still hears for a time the beating of that organ; but when, after having listened for a sufficient time, the practised auscultator cannot distinguish the beat of the heart, life is over. (*Traité des signes de la mort, &c.*, by E. Bouchut, Paris, 1849.) In examining the heart in a number of the dying, M. Bouchut found that the longest interval between the pulsations was 6 seconds; from a similar investigation M. Rayer found it to be 7 seconds. "If," concludes the latter, "the absence of the pulsation of the heart is verified by the auscultator for a period 50 times as great as the longest observed period, or for an interval of 5 minutes, the patient is undoubtedly dead." Even this, however, admits of some exceptions. In new-born infants the action of the heart may have ceased for a longer period, and yet the child revive, and the same thing is said to have occurred in the cold stage of Asiatic cholera. M. Michel Levy proposes on these accounts that the verification of decease should take place at 2 periods, separated by an interval of 24 hours, and considers that if, on both these occasions, the absence of all movement of the heart for a sufficient length of time is noticed by a competent observer, the interment may take place in perfect safety. When by an excess of precaution further evidence of death may be desired, he recommends the application of an iron heated to redness to the skin; this has the double advantage of distinguishing between real and apparent death, and of rousing the patient energetically where death has not occurred. The application of a red-hot iron to the living body for a length of time sufficient to cause the total destruction of the whole thickness of the skin, the injury being surrounded by a vivid redness, causes in the dead body merely a slight shrivelling of the epidermis, and a searing of the superficial layer of the true skin. To prevent the occurrence of premature interment mortuary houses have been built in many of the towns of Germany, in which the dead are retained for a time before the final interment. A bell-pull is so arranged in connection with the extremities of the corpse, that the slightest motion will sound an alarm,

and summon an attendant constantly on the watch. So far, these precautions have been useless; a surgeon who for 45 years had been attached to the mortuary house at Mentz, had during that period but one single alarm; it occurred from the corpse of an old man; the abdomen having subsided from the discharge of a large quantity of fluid, the arms had fallen lengthwise beside the body.

BURIAS, an island of the Philippine archipelago, lying between the southern end of Luzon and the island of Masbate; area 264 sq. m.; pop. about 1,000. The greater portion of its bold, rocky surface is devoid of any appearance of vegetation; but its few miserable inhabitants, who are all confined to a town opposite to the shores of Luzon, cultivate a little rice and potatoes, which with fish constitute their chief subsistence.

BURIATS, BURATS, or BURATSKI, a nomadic Tartar nation of many tribes, submitted to the Russian empire in 1644. They are a branch of the Calmucks, and muster a force of 82,000 archers. They choose their own rulers, and support themselves by the forging of iron, by other mechanic arts, and by their flocks. They are idolaters, and beside a supreme god, named Octorgon Burchan, god of heaven, they worship the planets as inferior deities. A few of these people have been converted to the Greek church, but they retain an affection and preference for their old ceremonies.

BURIDAN, JEAN, a French philosopher who flourished in the middle of the 14th century. He was born in Artois, but educated at the university of Paris, where he afterward acquired great fame as a lecturer. He was a disciple of Occam, and was ultimately driven from Paris by the persecution of the realists. He wrote a commentary on the metaphysics of Aristotle. His celebrity in modern times, however, arises from an apologue which he invented to illustrate the doctrine of free will. "An ass," says Buridan, "placed midway between two bundles of hay, would maintain his position, and die of starvation, if he had no choice; but if he turns to one side or the other for the purpose of satisfying his appetite, then he has choice, and of course freedom of will." This proposition, commonly called "Buridan's ass," was long a source of great perplexity to the schools.

BURIGNY, JEAN LÉVESQUE DE, a French miscellaneous writer, born at Rheims in 1692, died in Paris, Oct. 8, 1785. In his 16th year he began to manifest that insatiable thirst for knowledge which ever after distinguished him. In 1718 he removed to Paris, where, in conjunction with his 2 brothers, he engaged in the compilation of a sort of manuscript encyclopædia, which, when completed, formed 12 large folio volumes, whence he drew the materials for many of his subsequent publications. His largest work, a treatise on the papal power, is not much esteemed, but his lives of Erasmus, Grotius, Bossuet, and Cardinal du Perron, are interesting.

**BURKE.** I. A county of North Carolina, abounding in beautiful mountain scenery. It is traversed by the Blue Ridge near its N. W. border. The soil is very fertile in some places, and produces excellent pasturage. Indian corn, wheat, oats, hay, cattle and swine, are the staples. The productions in 1850 were 232,237 bushels of Indian corn, 16,018 of wheat, 86,959 of oats, and 1,200 tons of hay. There were 6 corn and flour mills, 2 tanneries, 28 churches, and 960 pupils attending public schools. Value of real estate in 1857, \$694,898. It was organized in 1777, and named in honor of the statesman and orator Edmund Burke. Area, 450 sq. m. Pop. in 1850, 7,772, of whom 2,182 were slaves. Capital, Morgantown. II. A county of Georgia, organized in 1777, separated from South Carolina by Savannah river. The Ogeechee forms its southern boundary. It has a somewhat hilly surface and a fertile soil. In 1850 Burke county produced 19,175 bales of cotton, a crop exceeded in no county of the state except Houston. During the same year it yielded 648,608 bushels of corn, 28,260 bushels of oats, and 111,232 bushels of sweet potatoes. The value of land in 1856 was \$2,817,650. Limestone, buhrstone, gypsum, agate, chalcedony, and jasper are the principal mineral productions. Trade is greatly facilitated by the central railroad, which intersects the county, and by the Savannah river, which is navigable along its borders. Area, 1,040 sq. m. Pop. in 1856, 15,260, of whom 10,998 are slaves. Capital, Waynesborough.

**BURKE, EDANUS**, an American judge and politician, born in Galway, Ireland, in 1743, died in Charleston, S. C., March 30, 1802. He was educated at St. Omer's for a priest, visited the West Indies, came thence to South Carolina near the commencement of the revolutionary war, and served as a volunteer in the patriot army. He was a lawyer by profession, and in 1778 was appointed judge of the supreme court of the newly organized state. When Charleston fell in 1780, he again joined the army, but resumed his judicial office in 1782. He was opposed to the federal constitution because he feared consolidated power, was several times a U. S. senator, and wrote a famous pamphlet against the aristocratic features of the society of the Cincinnati, which was subsequently translated by Mirabeau, and used with great effect by him during the French revolution. He became chancellor of South Carolina a short time before his death. Judge Burke was distinguished for his wit; but he was also an upright and earnest republican, and possessed varied accomplishments.

**BURKE, EDMUND**, a British statesman, orator, and writer, born in Dublin, Jan. 1, 1730, died at Beaconsfield, July 9, 1797. He received the rudiments of his education at Castletown Roche, was afterward put under the tuition of a learned Quaker at Ballitore, in the county of Kildare, and entered Trinity college (Dublin) in 1744. Five years were spent there in the diligent study of the classics, metaphysics, rhetoric,

and history. After taking his bachelor's degree (1749), he made an application for the professorship of logic in the university of Glasgow, which was unsuccessful. His principal taste, at that period, was for metaphysics, and he projected a refutation of the systems of Berkeley and Locke, which he does not appear to have completed. It may be inferred from the acuteness displayed in his subsequent writings that, if he had carried out his purpose, he would have ridden a pretty successful tilt against those masters of the ring. Meantime, he had entered his name in the middle temple at London, and in 1750 proceeded thither to begin the study of the law. It is commonly represented that Burke went up to London as a needy adventurer, dependent upon his pen for support, and willing to take any occupation that might befall him; but the more authentic accounts show that his father was then an attorney in large practice, who made the amplest allowance for his support. (See preface, by his executor, to the "Observations on the Conduct of the Minority in the Session of 1793," a pamphlet not contained in the usual editions of his works.) He was, moreover, of excellent family, by his mother's side; she being the great niece of Miss Ellen Nagle, who married Sylvanus Spenser, the eldest son of the poet. Little is known of his law studies or of his life in London, except that he wrote for the periodicals and newspapers on politics, and in 1755 was offered some place under government in America, which he was deterred from accepting by the opposition of his father. His first separate literary production was "A Vindication of Natural Society," purporting to be by "a late noble writer," in which he imitated the style and manner of Lord Bolingbroke with remarkable adroitness; so much so that many competent critics, such as Warburton and Chesterfield, are said to have taken it for an authentic work. Had they considered it closely, however, they must have discovered in it tokens of a brilliancy of imagination and of a vehement natural eloquence, to which Bolingbroke never attained. It appeared in 1756, and is worthy of note as well for the light which it throws upon the tendency of his speculations at that time, as for its uncommon vigor and beauty of composition. Burke was then in his 27th year; yet, a few months later, we find him publishing his "Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful," a treatise which for many years occupied a first rank in the æsthetic literature of England, although it is now superseded by the profounder researches of the continental writers. The same year he went to Bath for his health, where he married a Miss Nugent, the daughter of a distant relative, Dr. Christopher Nugent. On his return to London, in April, 1757, he is supposed to have published "An Account of the European Settlements in America," 2 vols., although that work is not included in the common editions of his writings. The fact of his

authorship of it is said to rest upon the still extant autograph receipt for fifty guineas, which he gave to the publisher Dodale, by whom it was printed. The beginning of a history of England was written by him for the same publisher, and the narrative down to the time of King John printed, when for some reason or other it was suspended. The probability is, that as he was then also employed in writing the "Annal Register," begun by Dodale in 1759, he scarcely found time for the investigations and studies of his more elaborate undertaking. His pay on the "Register" was £100 per volume. By these various publications he had made himself favorably known, both in literary and political circles, and it was not long before he was invited to an active participation in political life. When Lord Halifax went over to Ireland, as lord lieutenant, in 1761, he made William Gerard Hamilton, often designated as Single Speech Hamilton, his chief secretary, who made Burke his private secretary. The services and talents of the latter secured him, in April, 1763, a pension of £300 per annum on the Irish establishment; but as Hamilton, who had been instrumental in getting it for him, conceived that Burke was thereby bound to him for life, the indignant young pensioner speedily surrendered the bounty. On the breaking up of the Grenville administration, two years later, the marquis of Rockingham assumed the management of affairs, and appointed Burke his private secretary. Soon afterward he was brought into parliament as member for Wendover, in Buckinghamshire, a borough belonging to Lord Verney. The very day he took his seat (Jan. 14, 1766) in this new and appropriate theatre, he made some remarks on the address of thanks to the throne, which attracted the favorable attention of Pitt. Well they might attract his attention, for no man had ever appeared in that scene more wonderfully qualified for acting a leading part in it than Burke. In a little while he became the animating spirit of the Rockingham administration, and in the stormy and perilous debates which grew out of the question of the American stamp act, his eloquent voice was the most effective in securing moderate and conciliatory measures. Out of the house, as well as in the house, his industry was most indefatigable, while his knowledge of everything pertaining to the history, the condition, and the feelings of the colonies, was exceedingly useful. On the dissolution of the Rockingham government in July, 1766, Burke wrote "A Short Account of a late Short Administration," in which he vigorously defended the policy of the whigs. In the compromise cabinet which Lord Chatham undertook to form he was offered a place, which he declined, as he did a similar offer on the part of the duke of Grafton in 1767. The parliament was dissolved in 1768, when Burke was again returned for Wendover. About the same time, he purchased for £30,000 a beautiful estate near Beaconsfield, Buckinghamshire; a part of the purchase

money having been advanced, at first as a loan, and afterward as a gift, by the marquis of Rockingham. In 1769 Burke published his first political pamphlet, called "Observations on a late State of the Nation," being a reply to another on the "Present State of the Nation." This was followed the next year by his "Thoughts on the Present Discontents," which surpassed in luminousness, vigor, and beauty, any thing that he had yet achieved. In Nov. 1771, he was appointed agent of New York, to represent the interests of that colony near the government and before the people. He was also busily occupied in parliament, in the debates of which he took always a prominent part. During the sessions of 1772-'8 he particularly distinguished himself by his masterly and ponderous reviews of the affairs of the East India company. Still more did he distinguish himself during the next session, 1774, on the state of America, then driven almost into insurrection by the course of the imperial government. His great speech, on American taxation, was delivered on April 19 of that year. On the dissolution of the parliament, he was nominated for the city of Bristol, for which, after a severe and protracted electoral contest of 27 days, he was returned on Nov. 8. On March 22, 1775, he delivered another powerful and eloquent speech in behalf of the Americans, which he subsequently sent to the press. The vehemence with which he entered into the cause of the colonists rendered him unpopular with his constituents, and he was compelled to defend himself in "Two Letters to Gentlemen of Bristol," which evince remarkable independence as well as ability. All the while the questions of the Catholic disabilities and of the trade with Ireland occupied a large share of his attention. On Feb. 11, 1780, he introduced his celebrated bills for regulating the household, the army, navy, and pension pay-offices, ordnance, the mint, the exchequer, &c., which he commended in a speech on "Economic Reform," which for breadth of view, force of reasoning, brilliancy of illustration, and eloquent appeal, is almost without a parallel in the records of parliamentary eloquence. But the splendor of his talents did not reconcile the electors of Bristol to his politics, and on the occurrence of the next election, he declined to stand a candidate. But the country was not destined to lose his services, nor posterity the delight of his oratorical displays. He was returned for Malton, which borough he continued to represent during the remainder of his career. The Rockingham party coming into power in March, 1782, Burke became a privy councillor, and paymaster-general of the forces; but, not possessing an aristocratic family connection, in accordance with the spirit of those days, he was not allowed a seat in the cabinet. No office in the gift of the government was more lucrative than that of paymaster; yet Burke's first act was to introduce a bill for its reorganization, which materially lessened his own emoluments. We



may judge of the worth of it, when it is stated that he effected, in that department alone, an annual saving of £47,000. On the death of the marquis of Rockingham, Burke retired for a time; but the ministry of the duke of Portland, in 1788, restored him to his former place. With that year began his labors on East Indian affairs, with his voluminous reports on the administration of justice in Bengal, and other provinces; and for 6 years, to May 7, 1789, he may be said to have lived in India, so deeply was he absorbed in the investigations and trials which arose out of the subject. It was during this interval that he conducted the famous impeachment of Hastings, in which he raised his reputation as an orator to its highest dignity and glory. Yet the arduous labors of the India business were but the prelude to other exertions, which rendered the closing years of his life the most memorable in his history. The great French revolution had broken out, and Burke, with an audacity that almost equals that of the ancient king who sought to curb the risings of the sea, undertook to check the spread of its doctrines and spirit. In 1790 his "Reflections on the Revolution of France" appeared, and 80,000 copies were sold almost on the day of its publication. It was a magnificent outburst of mingled logic, wrath, and imagination, which aroused a thousand pens in answer, and filled the world with his name. The extremely conservative sentiments of it, which appeared to rebuke every form of popular discontent and resistance of tyranny, led to an open rupture between Burke and Fox, who was then the leader of the whigs in the house of commons. The scene of their separation is described by contemporary writers as the most affecting in the annals of politics, and we cannot even now read the speeches on the occasion without emotion. Burke thereafter stood almost alone in his politics, yet his tongue and his pen were incessantly engaged in the discussion of the themes which filled his heart. His "Appeal from the New to the Old Whigs," July, 1791, his "Letters to Sir Hercules Langrishe," 1792, his "Thoughts on French Affairs," his "Remarks on the Policy of the Allies," 1793, and a variety of other pamphlets, show the activity of his mind as well as the earnestness of his zeal. But on June 20, 1794, he retired from the house of commons forever, conceiving that he had played his part, and conscious of the approaches of age. In August of the same year, the death of his only son, Richard Burke, inflicted upon him a terrible blow, yet he retained his cheerfulness and activity. In 1795 he received a pension of £1,200 from the civil list, and soon after another of £2,500 from the 4½ per cent. fund. In his retirement, however, his pen was still busy, and in a "Letter to a Noble Lord," 1796, he showed all his original splendor and nerve. The same year, also, he published "Two Letters on the Proposal for a Regicide Peace."

Among his latest cares was the foundation of a school for the children of French emigrants. He died in the 68th year of his age, preserving his faculties to the last, and causing to be read to him, on his death-bed, the beautiful essay of Addison, in the "Spectator," on the immortality of the soul.—Amiable in private life, exemplary in all his relations, of unexampled powers of conversation, and munificently accomplished in the various walks of philosophy, science, politics, history, and literature, he had endeared himself to a large circle of friends, as much by the beauty of his character as by the prodigious capacities of his intellect. Burke justly reached by the mere force of his abilities the most elevated positions of statesmanship; as an orator, he stands at the head of British eloquence; his writings, distinguished by "imperial imagination" and a mighty sweep of logic, are still the study of rhetoricians, after the interest of their subjects has mainly passed away; and he leaves to posterity a name unspotted by any vice or weakness. Under such circumstances, even they who cannot coincide with his political theories, are glad to acknowledge his genius, and to admire the uniform probity of his conduct. Americans, especially, will long continue to cherish his memory, because of the useful and magnanimous services he rendered their fathers in the dark days which preceded their emancipation.—A new history of his life and times, by Thomas Macknight, was commenced in London, 1858, 2 vols.

BURKE, Sir JOHN BERNARD, an English genealogist, born in London in 1814. His father, the late Mr. John Burke, who died in 1848, was cadet of an ancient family in Ireland, and became attached, as reporter and editor, to the London press. He originated many literary speculations, among others the "Standard Novels," a series of republications, at a tenth of the original price, with new introductions by the authors, and illustrations by able artists. He was the founder and first editor (latterly assisted by his 2 sons) of "Burke's Peerage and Baronetage," long established as the most complete and accurate of its class, and so popular that a new edition is annually exhausted. This work is said to have been one of the most remunerative of the numerous publications of the late Mr. Henry Colburn, of London. In May, 1857, the copyright of this work was sold for a large sum, although burdened with the payment of £400 per annum to whichever of Mr. Burke's sons should edit the "Peerage," as long as it continued to be published. Mr. Burke also brought out the "Extinct Peerage," in 1 vol. 8vo, and the "General Armory of England, Scotland, and Ireland," and the "History of the Landed Gentry."—Sir J. Bernard Burke, called to the English bar at the Middle Temple, in 1839, succeeded him as editor of the "Peerage," and has also brought out revised and extended editions of his other works.

BURKE, JOHN DOLY, author of one of the best histories of Virginia, born in Ireland, edu-

ated at Trinity college, Dublin, was killed in a duel with a Frenchman, near Campbell's bridge, Va., April 12, 1808. He came to this country in 1797, conducted a newspaper at Boston, and subsequently another in New York, where he was arrested under the sedition law. He afterward removed to Petersburg, Va., where he practised law and wrote his history. He was the author of a few dramas on historical subjects, one of which was entitled "Bunker Hill."

**BURKE, WILLIAM**, an Irish shoemaker, resident in Edinburgh, arraigned with his neighbor Hare, in Dec. 1828, charged with committing 8 murders. Convicted on one of the indictments he was condemned to death. Shortly before his execution he confessed that in connection with Hare, he had murdered 15 persons since the beginning of 1828, and had sold their bodies to an Edinburgh surgeon. In 1827, a debtor of Hare dying in his house, the latter, to obtain his due, secretly sold the body. Burke was privy to the occurrence, and the facility of the trade prompted them to their career of crime. The victims were in most cases first intoxicated and then stifled. This exposure subjected the British anatomical schools to legal conditions in their means of obtaining subjects.

**BÜRCKEL, HENRICH**, a German painter, born in Pirmasens, in Rhenish Bavaria, Sept. 9, 1802. He studied at the academy of Munich and in Italy, and gained much reputation by his sketches of Italian life and scenery; of which a "Conroy of Brigands" in the Campagna of Rome is the best. Since his return to Bavaria, he has executed a variety of views of the Bavarian mountains and of the Tyrol, a great number of pictures of the popular life around him, and of the cow-keepers' cottages in Switzerland, pastoral sketches of animals, and winter landscapes.

**BURKITT, WILLIAM**, an English divine, born at Hitcham, in Suffolk, in 1650, died at Dedham, in Essex, in 1708. He was zealous in collecting aid for the French Protestants who suffered from the revocation of the edict of Nantes; and, through his instrumentality, a minister was procured to preach the gospel in Carolina. He wrote a popular commentary on the New Testament.

**BURLAMAQUI, JEAN JACQUES**, a Swiss writer upon civil law, born at Geneva, July 24, 1694, died April 8, 1748. His early education was directed by his father, a learned man and secretary of the republic. While engaged in philosophical investigations he felt himself drawn to the study of natural law and of the rights of men; and his progress was such that he was not quite 26 when he obtained the title of honorary professor of jurisprudence in his native city. He travelled in England, Holland, and France, and returning to Geneva in 1728, he began his course of lectures, which brought great reputation to himself and the university. After 15 years he resigned his professorship by reason of ill health, and became a member of the sovereign council, where he continued to render service to the state until his death. The writ-

ings of Burlamaqui are remarkable for the clearness and precision of their style, and have been used as text-books in several of the German universities, and in that of Cambridge, England. He found many of his materials in Grotius, Puffendorf, and Barbeyrac, but these become in his hands freed from every digression and reduced to a geometrical simplicity and order. His principal works are, "Principles of Natural Law," published in 1747, and "Principles of Political Law," 1751.

**BURLEIGH, WILLIAM OCEIL, LORD**, born at Bourne, Lincolnshire, Sept. 13, 1520, died Aug. 4, 1598. He has been called the son of a plain country gentleman, but his father was master of the robes to Henry VIII., and could early introduce him to the ways of courts, which, whether from long habitude or natural temperament, none better understood or pursued. He was educated for the law, and a debate with 2 priests, in which he attacked papal supremacy, so pleased the king that Cecil was at once received into royal favor. At the death of Henry, Cecil continued in favor with Edward VI., and was appointed secretary of state in 1548. On the fall of the lord protector, Somerset, who had been his friend and patron, Cecil was for a time involved in his disgrace; but he found a way of making his peace, and after a short imprisonment, was restored to favor. The duke of Northumberland, Somerset's rival and successor, was also a patron of Cecil, who avoided compromising himself in the question of the succession, and, trimming his sails, adroitly seized an opportunity as soon as he saw that the cause of Mary was likely to be successful, and tendered his submission, which was graciously accepted. During the reign of Mary he took no important part in public affairs, and though a Protestant at heart conformed outwardly to the queen's religion, and thereby preserved a share of royal favor. As a country gentleman, he took part in the debates of the house of commons, and ventured to oppose the government, but in a temperate manner. When Mary's increasing ill health indicated the prudence of such a step, Cecil opened a correspondence with the princess Elizabeth, who, on her accession to the throne, at once appointed him her secretary and eventually lord treasurer. Thenceforward, till the end of his long life, he was in reality Elizabeth's prime minister. In 1571 he was created Baron Burleigh. The wise and eminently prudent policy which distinguished the reign of Elizabeth, is no doubt traceable to Burleigh. Elizabeth's impetuous and tyrannical disposition would have involved her government in an endless sea of troubles. The epoch was one in which doctrines dangerous to supremacy were rife; when men's minds, disturbed by new opinions, had not yet settled down into a decided political creed. She had the good sense to discriminate Burleigh's uses to temper her more fiery nature; and no backbiting or aspersion of envious rivals could disparage her trusty servant in her estimation.

Accustomed to thread his way through the wiles of diplomacy, Burleigh was always well informed of the plots which were continually in progress or contrivance against the queen's person or the peace of the country. His sagacity and coolness outwitted them all. Burleigh's public life is the reign of Queen Elizabeth. The brilliant Leicester, the gallant Essex, the chivalrous and polished Raleigh, were the personal favorites of the queen. Burleigh alone held the helm of the English vessel of state. His private life was calm and undisturbed, his personal habits quiet and frugal. His thrift sometimes approached meanness or avarice, but he was not the less honest and upright in his public dealings. He was twice married; in early life to a sister of Sir John Oheke, who died, leaving one son, Thomas, afterward earl of Exeter; his second wife was Mildred, by whom he had Robert, his associate and successor, afterward earl of Salisbury, and two daughters. He survived his second wife by only a few years, and died full of age and honors.

**BURLEIGH, WILLIAM HENRY**, an American poet, born at Woodstock, Conn., Feb. 2, 1812. Bred on a farm, at 16 he became apprentice to a clothier, then to a village printer, both of whom he abandoned in disgust. He continued, however, to labor in various places as journeyman printer, and finally as editor. In the latter capacity he has had charge of the "Literary Journal" at Schenectady, the "Christian Witness," at Pittsburg, and the "Washington Banner," in which papers, and in others, he has communicated many short poems to the public. A collection of them was published in 1840. Mr. Burleigh has also taken an active part in various religious and social movements.

**BURLESON**, a central county of Texas, bounded on the N. by Brazos river, drained by 3 forks of the Yegua, one of the tributaries of the Brazos, and comprising an area of 1,025 sq. m. The surface is moderately uneven; the soil of the lowlands is a sandy loam, in many places very productive; that of the uplands is lighter. Timber is abundant, about  $\frac{1}{2}$  of the county being covered with red and post oak. The staples are grain, cotton, sugar, and live stock. In 1850 the productions amounted to 1,010 bales of cotton, 10 hogsheads of sugar, 70,000 bushels of Indian corn, 3,620 of sweet potatoes, and 17,280 pounds of butter. There were 4 churches, and 115 pupils attending public schools. In 1857 there were 30,742 head of cattle, valued at \$180,000, and 2,354 horses, valued at \$121,100. The value of real estate was \$637,660, and the aggregate value of all taxable property, \$1,802,706. Formed from Milan county in 1846. Capital, Caldwell. The county was named in honor of Gen. Edward Burleson, vice-president of the republic of Texas. Pop. in 1856, 4,079, of whom 1,342 were slaves; slave pop. in 1857, 1,848.

**BURLINGTON**, a central county of New Jersey, extending entirely across the state, and

lying between the Atlantic on the S. E., and the Delaware river on the N. W. The surface is level. The soil near the river is remarkably fertile; in other localities it is sandy. Pine woods are found in various parts of the county. Bog iron ore is abundant, and in the western portion are frequently found, imbedded in marl, petrified vegetables, and animal relics, such as shells, bones, &c. Corn, wheat, potatoes, hay, and butter, are the staples. In 1850 the productions were 152,869 bushels of wheat, 883,011 of Indian corn, 159,398 of oats, 41,783 tons of hay (the greatest quantity produced by any county of the state), 688,860 pounds of butter, and 48,781 of wool. There were 30 corn and flour mills, 2 cotton factories, 2 woollen factories, 7 founderies, 4 glass manufactories, 2 paper mills, 52 saw mills, 3 newspaper offices, 83 churches, and 6,771 pupils attending public schools. The Camden and Amboy railroad traverses the county. This county was organized in 1694, and named from Bridlington (commonly pronounced Burlington), a town in England. Area, 600 sq. m. Pop. in 1856, 46,442. Capital, Mount Holly.

**BURLINGTON**, the name of several towns and cities of the United States. I. A city, port of entry, and the capital of Chittenden co., Vt., situated on a bay of its own name on the E. shore of Lake Champlain. Pop. in 1854, 8,900. Its harbor is the best on the lake, being easy of access from N. and S., protected from W. winds by a breakwater 900 feet long, and having a lighthouse erected in 1826 on Juniper island, at the mouth of the bay. It is the largest place in the state, and in beauty of scenery and location is scarcely surpassed in New England. The ground on which it is built rises gradually from the shore to a height of 281 feet, the summit commanding one of the finest views in the United States. Looking west the eye passes over the city, with its straight avenues, its pleasant dwellings surrounded by trees and gardens, and its elegant public buildings; over the lake, here 10 miles wide, dotted with islands, and furrowed by many vessels, to the Adirondac mountains, which lift their peaks more than 5,000 feet above the water. Eastward lies the broad expanse of fertile land bounded by some of the loftiest of the Green mountains. On the N. is seen the Winoski or Onion river, with the manufacturing village of Winoski, connected with the city by a bridge, and partly comprised in Burlington township. The university of Vermont, comprising 4 large buildings, founded in 1791, and endowed by the state with 29,000 acres of land, the annual revenue from which is \$2,500, occupies the highest ground in the city. It has now (1858) 7 professors, 98 students, and a library of 18,000 volumes. Connected with it is a medical school. The other edifices of most note are 8 churches, a court-house, and a jail, several of which face a central public square. There are 17 schools, an academy, 2 female seminaries, 3 newspaper offices, 5 banks, a custom-house and marine hospital built in 1857, a brewery, a grist mill, and 8 saw-mills. The mercantile business amounts to about \$1,600,000

per annum. Most of the lake vessels are owned here, and the tonnage in 1857 was 5,900 tons. The Vermont central and Canada, and the Rutland and Burlington railroads offer ready communication with all parts of the United States and Canada. Steamboats stop here daily on the way from Whitehall to Montreal, and a steam ferry boat crosses the lake to Port Kent and Plattsburg.—Burlington was first permanently settled in 1788, and organized in 1787. The first store was opened in 1789, and the first Congregational church formed in 1795. During the war of 1812 a garrison and hospital were located here, and during the winter of 1813, so fearful a mortality prevailed among the 4,000 men composing the former, that for several weeks together the deaths were from 12 to 20 a day. The tomb of Gen. Ethan Allen, who died here in 1789, is in a burying ground half a mile E. of the university. II. A city and port of entry of Burlington co., N. J., on the Delaware river, at the mouth of Assiscunk creek, 18 miles N. E. of Philadelphia. It was founded in 1677, principally by members of the society of Friends, who, for a long period, exercised a controlling influence over its affairs. It was long the seat of government for West Jersey, and was the official residence of the last colonial governor, William Franklin, until, at the breaking out of the revolution, he was taken thence, a prisoner, to New England. It was in many other respects a leading settlement in early times, entertained the legislature and the county courts, had public fairs, to which thousands periodically resorted, and as early as 1777 supported a printing office and newspaper. It also carried on a lucrative commerce with the West Indies, both before and after the laying out of Philadelphia, built vessels, and subsequently built and fitted out a large privateer, which cruised successfully against the French. It was made the see of a bishop, and St. Mary's Episcopal church was liberally endowed by Queen Anne with lands in and near the city, much of which is held to the present day, together with a massive communion service, presented by the same princess. As Philadelphia increased in importance, Burlington declined. It now (1858) contains about 5,000 inhabitants, 7 churches, 2 Friends' meeting houses, 2 banks, a weekly newspaper, an ancient library, which contains a large collection of very rare and valuable works, and public schools which are richly endowed by a legacy of land from one of the early settlers, now become exceedingly productive. Burlington college, an Episcopal institution, educates a large number of students; and St. Mary's Hall also, under the supervision of Bishop Doane, usually contains about 75 pupils. III. A city, and the county seat of Des Moines co., Iowa, situated on the W. bank of the Mississippi river, about 14 miles N. of an easterly extension of the main boundary line between Iowa and Missouri. The W. bank of the Mississippi at this point consists mostly of steep cliffs of carboniferous limestone that attain an

elevation of 150 feet, furnishing an abundance of excellent materials for building, paving, and the manufacture of lime. The stone quarries in this formation offer an interesting field for the investigations of the geologist, being rich in the organic fossils of the carboniferous era, particularly of the crinoid family. Though corresponding rock formations in Europe contain large deposits of lead, but little of that mineral has been found in this immediate vicinity. The summits of these cliffs are capped with some 80 or 40 feet of diluvial clay, that, with a rich surface stratum of vegetable mould, forms the table-land of the surrounding country. At the base of these cliffs the slope of their debris passes into the river. This deep embankment is scooped out through the centre of the city by the waters of a small creek, called the Hawk-eye, which enters the Mississippi nearly at right angles. On either side of this creek, and to the west, about half a mile from the river, where the creek branches to the right and left, the ground gradually rises to the level of the surrounding table land, thus giving to the central portions of the town an arrangement similar to the area of an amphitheatre, and adding much to its beauty and salubrity. On the opposite side of the river low lands, mostly subject to occasional inundation, extend some 7 or 8 miles to the Illinois bluffs.—This town was laid out in 1834, and named after Burlington, Vt. In 1837, when the territorial government of Iowa was established, Burlington became the capital, a distinction it lost in 1840. Possessed of great natural advantages, and intelligent and enterprising inhabitants, Burlington has advanced steadily in wealth and population; the latter now (1858) amounts to 16,000. It is a terminus of the Chicago and Burlington, the Peoria and Burlington, and the Burlington and Missouri river railroads; the first of which lines has been completed now somewhat over 3 years, and the second over 1 year. Eleven religious congregations have churches, viz.: 3 Presbyterian, 2 Methodist, 2 Roman Catholic, 1 Congregationalist, 1 Baptist, 1 Lutheran, and 1 German reformed church. Ample means of education are provided; 2 fine public school-houses adorn the opposite hills of the city, north and south, capable of accommodating from 4 to 6 schools each, and others are in process of erection; while, on the western rise, the Burlington university, a flourishing institution, established in 1854, occupies a conspicuous site. Burlington also possesses 2 daily, 1 tri-weekly, and 4 weekly newspapers, 3 flouring mills, 3 founderies, 1 oil mill, 3 pork-packing houses, 3 banking houses, 9 breweries, 6 saw-mills, 1 starch factory, and 3 soap factories. The extensive coal fields in the vicinity offer unusual facilities for manufactures.

BURLINGTON, RICHARD BOYLE, EARL OF, an English architect, born April 25, 1695, died 1758. He studied architecture in Italy, but had no feeling for the Gothic. The portfolios of Inigo Jones and the structures of Palladio won his admiration, and on the principles which

these exhibited he erected many buildings, of which the best known are his own villas at Cheswick and at Lanesborough in Yorkshire, the front of Burlington house (lately purchased by government for scientific societies, &c.), the dormitory at Westminster school, mansions for several noblemen, his friends, the reparation of St. Paul's church, Covent garden (by Inigo Jones), and the assembly room at York, which is his best work. He was the friend of Pope, who eulogized him in his "Fourth Epistle."

BURMAH, or THE KINGDOM OF AVA, an extensive state in the S. E. of Asia, beyond the Ganges, formerly much larger than at present. Its former limits were between lat.  $9^{\circ}$  and  $27^{\circ}$  N., ranging upward of 1,000 miles in length, and over 800 in breadth. At present the Burmese territory reaches from lat.  $19^{\circ} 25'$  to  $28^{\circ} 15'$  N., and from long.  $98^{\circ} 2'$  to  $100^{\circ} 40'$  E.; comprising a space measuring 540 miles in length from N. to S., and 420 miles in breadth, and having an area of about 200,000 sq. m. It is bounded on the W. by the province of Aracan, surrendered to the British by the Burmese treaty of 1826, and by the petty states of Tipperah, Munnipoor, and Assam, from which countries it is separated by high mountain ridges; on the S. lies the newly acquired British province of Pegu, on the N. upper Assam and Thibet, and on the E. China. The population, according to Capt. Henry Yule, does not exceed 3,000,000.—Since the cession of Pegu to the British, Burmah has neither alluvial plains nor a seaboard, its southern frontier being at least 200 miles from the mouths of the Irrawaddy, and the country rising gradually from this frontier to the north. For about 800 miles it is elevated, and beyond that it is rugged and mountainous. This territory is watered by three great streams, the Irrawaddy, its tributary the Khyen-dwem, and the Salwin. These rivers have their sources in the northern chain of mountains, and run in a southerly course to the Indian ocean.—Though Burmah has been robbed of its most fertile territory, that which remains is far from unproductive. The forests abound in valuable timber, among which teak, used for ship building, holds a prominent place. Almost every description of timber known in India is found also in Burmah. Stick lac of excellent quality, and varnish used in the manufacture of lacquered ware, are produced. Ava, the capital, is supplied with superior teak from a forest at 15 days' distance. Agriculture and horticulture are everywhere in a remarkably backward state; and were it not for the wealth of the soil and the congeniality of the climate, the state would be very poor. Fruits are not cultivated at all, and the crops are managed with little skill. Of garden vegetables, the onion and the capsicum are the most generally cultivated. Yams and sweet potatoes are also found, together with inconsiderable quantities of melons, cucumbers, and egg-plants. The young shoots of bamboo, wild asparagus, and the succulent roots of various aquatic plants, supply to the

inhabitants the place of cultivated garden fruits. Mangoes, pineapples, oranges, custard-apples, the jack (a species of breadfruit), the papaw, fig, and the plantain (that greatest enemy of civilization), are the chief fruits, and all these grow with little or no care. The chief crops are rice (which is in some parts used as a circulating medium), maize, millet, wheat, various pulses, palms, sugar-cane, tobacco, cotton of short staple, and indigo. Sugar-cane is not generally cultivated, and the art of making sugar is scarcely known, although the plant has been long known to the people. A cheap, coarse sugar is obtained from the juice of the Palmyra palm, of which numerous groves are found, especially south of the capital. Indigo is so badly managed as to be entirely unfit for exportation. Rice in the south, and maize and millet in the north, are the standard crops. Sesamum is universally raised for cattle. On the northern hills the genuine tea-plant of China is cultivated to considerable extent; but, singularly, the natives, instead of steeping it, as they do the Chinese tea, eat the leaf prepared with oil and garlic. Cotton is raised chiefly in the dry lands of the upper provinces.—The dense forests of Burmah abound in wild animals, among which the chief are the elephant, the one-horned rhinoceros, the tiger and leopard, the wild hog, and several species of deer. Of birds, the wild cock is common; and there are also varieties of pheasants, partridges, and quails. The domestic animals are the ox, the horse, and the buffalo. The elephant also is used as a draught animal. The camel is not known. A few goats and sheep are found, but the breed is little cared for. Asses are also little used. Dogs are neglected in the Burmese economy, but cats are numerous. Horses are used exclusively for riding, and are rarely more than thirteen hands high. The ox is the beast of draught and burden in the north; the buffalo in the south.—Of minerals, gold, carried down in the sands of the mountains, is found in the beds of the various streams. Silver mines are wrought at Bor-twang, on the Chinese frontier. The amount of gold and silver obtained annually has been estimated to approach \$1,000,000. Iron is abundant in the eastern portion of Laos, but is so rudely wrought that from 80 to 40 per cent. of the metal is lost in the process of forging. The petroleum pits on the banks of the Irrawaddy produce 8,000,000 pounds per annum. Copper, tin, lead, and antimony are known to exist in the Laos country, but it is doubtful if any of these metals are obtained in considerable quantities, owing to the ignorance of the people of the methods of working ores. The mountains near the city of Ava furnish a superior quality of limestone; fine statuary marble is found 40 miles from the capital, on the banks of the Irrawaddy; amber exists so plentifully that it sells in Ava at the low price of \$1 per pound; and nitre, natron, salt, and coal are extensively diffused over the entire country, though the latter is little used. The

petroleum, which is produced in such abundance, is used by all classes in Burmah for burning in lamps, and as a protection against insects. It is dipped up in buckets from narrow wells sunk to a depth of from 210 to 300 feet; it bubbles up at the bottom like a living spring of water. Turpentine is found in various portions of the country, and is extensively exported to China. The oriental sapphire, ruby, topaz, and amethyst, beside varieties of the chrysoberyl and spinelle, are found in 3 districts in the beds of rivulets. All over \$50 in value, are claimed by the crown, and sent to the treasury; and no strangers are allowed to search for the stones.—From what has been said, it is evident that the Burmese have made but little advance in the practice of the useful arts. Women carry on the whole process of the cotton manufacture, using a rude loom, and displaying comparatively little ingenuity or skill. Porcelain is imported from China; British cottons are imported, and even in the interior undersell the native products; though the Burmese melt iron, steel is brought from Bengal; silks are manufactured at several places, but from raw Chinese silk; and while a very great variety of goods is imported, the exports are comparatively insignificant, those to China, with which the Burmese carry on their most extensive commerce, consisting of raw cotton, ornamental feathers, chiefly of the blue jay, edible swallows' nests, ivory, rhinoceros and deer's horns, and some minor species of precious stones. In return for this, the Burmese import wrought copper, orpiment, quicksilver, vermilion, iron pans, brass wire, tin, lead, alum, silver, gold and gold leaf, earthenware, paints, carpets, rhubarb, tea, honey, raw silk, velvets, Chinese spirits, musk, verdigris, dried fruits, paper, fans, umbrellas, shoes, and wearing apparel. Gold and silver ornaments of a very rude description are made in various parts of the country; weapons, scissors, and carpenters' tools are manufactured at Ava; idols are sculptured in considerable quantities about 40 miles from Ava, where is found a hill of pure white marble. The currency is in a wretched condition. Lead, silver, and gold, all uncoined, form the circulating medium. A large portion of the commerce is carried on by way of barter, in consequence of the difficulties attending the making of small payments. The precious metals must be weighed and assayed at every change of hands, for which bankers charge about  $8\frac{1}{2}$  per cent. Interest ranges from 25 to 60 per cent. per annum. Petroleum is the most universal article of consumption. For it are exchanged saltpetre, lime, paper, lacquer ware, cotton and silk fabrics, iron and brass ware, sugar, tamarinds, &c. The *younet-ni* (the standard silver of the country) has generally an alloy of copper of 10 or 15 per cent. Below  $\frac{1}{10}$  the mixture does not pass current, that degree of fineness being required in the money paid for taxes.—The revenues of the empire proceed from a house tax, which is levied on the village, the village authorities afterward assessing householders according to

their respective ability to pay. This tax varies greatly, as from 6 tikals per householder in Promé to 27 tikals in Tongho. Those subject to military duty, the farmers of the royal domain, and artificers employed on the public works, are exempt. The soil is taxed according to crops. The tobacco tax is paid in money; other crops pay 5 per cent. in kind. The farmers of the royal lands pay over one-half their crops. Fishing ports on lake and river are let either for a stated term or for a proportion of dried fish from the catch. These various revenues are collected by and for the use of the officers of the crown, each of whom receives, according to his importance, a district greater or less, from the proceeds of which he lives. The royal revenue is raised from the sale of monopolies of the crown, among which cotton is the chief. In the management of this monopoly, the inhabitants are forced to deliver certain articles at certain low prices to the crown officers, who sell them at an enormous advance. Thus, lead is delivered by the producers at the rate of 5 tikals per bis, or 880 lbs., and his majesty sells it at the rate of 20 tikals. The royal revenues amount, so it is stated, to about 1,820,000 tikals, or £227,500 per annum, to which must be added a further sum of £44,250, the produce of certain tolls levied in particular districts. These moneys keep the royal household. This system of taxation, though despotic, is singularly simple in its details; and a further exemplification of simplicity in government, is the manner in which the army is made to maintain itself, or, at least, to be supported by the people. The modes of enlistment are various; in some districts the volunteer system being adhered to, while in others, every 16 families are forced to furnish 2 men armed and equipped. They are further obliged to furnish to these recruits, monthly, 56 lbs. of rice and 5 rupees. In the province of Padoung every soldier is quartered upon 2 families, who receive 5 acres of tax-free land, and have to furnish the man of war with half the crops, and 25 rupees per annum, beside wood and other minor necessities. The captain of 50 men receives 10 tikals (the tical is worth \$1 $\frac{1}{2}$ , or 2 $\frac{1}{2}$  rupees) each from 6 families, and half the crop of a 7th. The *bo*, or centurion, is maintained by the labor of 52 families, and the *bo-gyi*, or colonel, raises his salary from his own officers and men. The Burman soldier fights well under favoring circumstances, but the chief excellence of a Burman army corps lies in the absence of the *impedimenta*; the soldier carries his bed (a hammock) at one end of his musket, his kettle at the other, and his provisions (rice) in a cloth about his waist.—In physical conformation, the Burmese appear to be of the same race which inhabits the countries between Hindostan and China, having more of the Mongolian than of the Hindoo type. They are short, stout, well proportioned, fleshy, but active; with large cheek-bones, eyes obliquely placed, brown but never very dark

complexion, coarse, lank, black hair, abundant, and more beard than their neighbors, the Siamese. Major Allen, in a memoir to the East India government, gives them credit for frankness, a strong sense of the ridiculous, considerable readiness of resource, little patriotism, but much love of home and family; comparatively little prejudice against strangers, and a readiness to acquire the knowledge of new arts, if not attended with too much mental exertion. They are sharp traders, and have a good deal of a certain kind of enterprise; are temperate, but have small powers of endurance; have more cunning than courage; though not blood-thirsty by nature, have borne phlegmatically the cruelties of their various kings; and without being naturally liars and cheats, are yet great braggarts and treacherous.—The Burmese are Buddhists by faith, and have kept the ceremonies of their religion free from intermixture with other religions than elsewhere in India and China. The Burmese Buddhists avoid, to some extent, the picture worship practised in China, and their monks are more than usually faithful to their vows of poverty and celibacy. Toward the close of the last century, the Burman state religion was divided by 2 sects, or offshoots from the ancient faith. The first of these entertained a belief similar in some respects to pantheism, believing that the godhead is diffused over and through all the world and its creatures, but that it appears in its highest stages of development in the Buddhists themselves. The other rejects entirely the doctrine of the metempsychosis, and the picture worship and cloister system of the Buddhists; considers death as the portal to an everlasting happiness or misery, according to the conduct of the deceased, and worships one supreme and all-creating spirit (*Nat*). The present king, who is a zealous devotee to his faith, has already publicly burned 14 of these heretics, both parties of whom are alike outlawed. They are, nevertheless, according to Capt. Yule, very numerous, but worship in secret.—The early history of Burmah is but little known. The empire attained its acme of power in the 11th century, when the capital was in Pegu. About the beginning of the 16th century the state was split into several minor and independent governments, which made war upon each other; and in 1554, when the king Tahan-byoo Myayen took Ava, he had subdued to himself all the valley of the Irrawaddy, and had even subjected Siam. After various changes, Alompra, the founder of the present dynasty (who died in 1760), once more raised the empire to something like its former extent and power. Since then the British have taken from it its most fertile and valuable provinces.—The government of Burmah is a pure despotism, the king, one of whose titles is lord of life and death, dispensing imprisonment, fines, torture, or death, at his supreme will. The details of the government are carried out by the *hlwot-dau*, or council of state, whose presiding officer is the

pre-nominated heir-apparent to the throne, or if there is no heir named, then a prince of the blood royal. In ordinary times the council is composed of 4 ministers, who have, however, no distinct departments, but act wherever chance directs. They form also a high court of appeal, before whom suits are brought for final adjudication; and in their individual capacity, they have power to give judgment on cases which are not brought up to the collective council. As they retain 10 per cent. of the property in suit for the costs of the judgment, they derive very handsome incomes from this source. From this and other peculiarities of the Burmese government, it is easily seen that justice is rarely dealt out to the people. Every officeholder is at the same time a plunderer; the judges are venal, the police powerless, robbers and thieves abound, life and property are insecure, and every inducement to progress is wanting. Near the capital the power of the king is fearful and oppressive. It decreases with distance, so that in the more distant provinces the people pay but little heed to the behests of the lord of the white elephant, elect their own governors, who are ratified by the king, and pay but slight tribute to the government. Indeed, the provinces bordering on China display the curious spectacle of a people living contentedly under two governments, the Chinese and Burmese taking a like part in the ratification of the rulers of these localities, but, wisely, generally settling on the same men. Notwithstanding various British embassies have visited Burmah, and although missionary operations have been carried on there more successfully than elsewhere in Asia, the interior of Burmah is yet a complete *terra incognita*, on which modern geographers and map-makers have ventured some wild guesses, but concerning which they know very little in detail.—(See "Narrative of the Mission sent by the Governor-General of India, to the Court of Ava, 1855," by Capt. Henry Yule. London, 1858.)

BURMANN, the name of a Dutch family distinguished for learning.—FRANCISCUS, born at Leyden in 1628, died in 1679, was the son of a Protestant minister who had been driven from France. He officiated as professor of theology, and became known to fame by his writings, especially by his commentaries on the Old Testament.—PETER, his eldest son, born at Utrecht, June 26, 1668, died in Leyden, March 31, 1741, studied under Grævius and Gronovius, received his diploma of doctor at law in 1688, travelled extensively abroad, gained distinction in the practice of his profession, and successively officiated as professor of eloquence, history, Greek and politics, at Utrecht, and subsequently at Leyden, where he was twice rector of the university, and where he finally became professor of the history of the United Provinces and of poetry, and keeper of the university library. His editions of Latin classics and of the works of

George Buchanan gained for him a great reputation among the learned men of his time. He published, also, treatises on Roman antiquities, and on the revenues of the Roman people, a dissertation on the *Jupiter Fulgurator*, the epistles of Gndius and other scholars, and a more elaborate work of the same kind, entitled *Sylloge Epistolarum* (Leyden, 5 vols., 1727), which is of great usefulness to classical scholars from its profusion of literary anecdotes and critical disquisitions. He was frequently engaged in controversies with many of his learned contemporaries, and in the preface to his edition of Lucan he speaks of Bentley with a certain degree of bitterness. His life was written by Dr. Johnson, who says of him that "if reputation be estimated by usefulness, he may claim a higher degree in the ranks of learning than some others of happier elocution or more vigorous imagination." In the "Dunciad," however, we find Burmann's name coupled with those of several other scholars against whom Pope's satire was directed.—Among the many other learned members of the same family the nephew of the preceding, PETER BURMANN, occupies the most conspicuous position. He was born in Amsterdam, Oct. 13, 1714, and died June 24, 1778. In 1736 he was appointed professor of eloquence, history, and poetry at Franeker, and in 1743 he was transferred to the Athenæum of Amsterdam, where he taught Greek in addition to the same branches of study, officiating at the same time as librarian and as visitor of the Latin schools. He inherited the controversial disposition and also the literary tastes of his uncle, and published editions of Virgil, Aristophanes, and other classic authors.

BURMANN, GOTTLIEB WILHELM, a German poet, born May 18, 1737, at Lauban, died Jan. 5, 1805, in Berlin. He is now chiefly remembered for his wonderful talent of improvisation. Upon any given theme he would for several hours utter in verse a succession of excellent thoughts.

BURMEISTER, HERMANN, a German naturalist, born at Stralsund in 1807. He studied medicine at Greifswald and Halle, and in 1830 went to Berlin to qualify himself to be a teacher of natural history. He was soon after appointed an instructor in the gymnasium at Orléans, and while there published, in 1837, his "Manual of Natural History." In 1842 he became professor of zoology in the university of Halle, where he still remains one of the most popular teachers, extending his lectures beyond his particular province to geology and other branches of natural history. In 1851 and '52 he made a scientific journey to Brazil, of which he published an account in 1853. Besides numerous zoological publications, his more important works are a "History of Creation," and "Geological Pictures of the Earth and its Inhabitants."

BURN, RICHARD, an English divine and law writer, born near Winton, in Westmoreland, and at Orton, in the same county, Nov. 20,

1789. His 2 most important works are his "Justice" and his "Ecclesiastical Law." The former is a digest of the common and statute law of England, for the guidance of magistrates and parish officers; the latter is a digest of English ecclesiastical law, for the use of churchmen and canonists.

BURNAP, GEORGE WASHINGTON, an American clergyman of the Unitarian denomination, born in Merrimack, N. H., in 1802. He was graduated at Harvard college in 1824, and from the same institution received the title of doctor of divinity in 1854. In 1827 he was ordained pastor of the 1st Independent church in Baltimore, where he still remains. Dr. Burnap has been a voluminous writer, his publications being chiefly of a theological and controversial character. In 1835 he wrote a doctrinal work on the "Controversy between Unitarians and other Denominations of Christians." Since then he has published "Lectures to Young Men," "Lectures on the Sphere and Duties of Woman," "Lectures on the History of Christianity," "Expository Lectures on the Principal Texts of the Bible which relate to the Doctrine of the Trinity," and various other works of theology, as well as numerous occasional addresses. Dr. Burnap has also contributed to Sparks's "American Biography" a life of Leonard Calvert, the first governor of Maryland. He is distinguished for his profound knowledge of the sacred Scriptures, and his writings, without ornate rhetoric, are pure in style, marked by logical acumen and clear judgment.

BURNES, SIR ALEXANDER, British geographer and diplomatist, born at Montrose, Scotland, May 16, 1805, assassinated in Cabool, Nov. 2, 1841. At the age of 16 he joined the Indian army at Bombay as cadet. He was appointed interpreter and translator, in Surat, from his proficiency in Hindostanee and Persian, Dec. 25, 1822. Disturbances having broken out in Cutch, his regiment was ordered there, and, in Nov. 1825, he was appointed Persian interpreter to the army for the invasion of Sindh. In 1829 he was appointed assistant to the political agent at Cutch. In 1830 he went to Lahore, the capital of the Panjaub, ostensibly in charge of a present of horses from William IV. to Runjeet Singh, but actually to obtain accurate knowledge of the geography of the Indus. He surveyed the mouths of the Indus and made a map of the lower part of its course. He immediately followed up this mission by an expedition into central Asia, under the especial direction of Lord William Bentinck, then viceroy of India. A year was occupied on this tour through Sindh, Afghanistan, Cabool, Tartary, Bokhara, and Persia. He returned to England in Oct. 1833, and was warmly received by the East India directors and the board of control. He received £800 for the 1st edition of his "Travels in Bokhara." The geographical society voted him its gold medal and a premium of 50 guineas "for the navigation of the Indus, and a journey by Balkh and Bokhara across central Asia." The French



geographical society gave him its gold medal and a brilliant reception. William IV. specially thanked him for his services. On returning to India, in 1835, he undertook a mission to Hyderabad to prevent the necessity of a war with Sind, and succeeded. He obtained permission from the ameer to survey the Indus, and a pledge that the practice of robbing stranded vessels should cease. In 1836-'7 he was sent to Dost Mohammed, at Cabool, on a commercial mission; but, persuaded that this prince meditated treachery toward the Anglo-Indian government, remonstrated, was dismissed, and retired to Simla, whence, when it was resolved to replace Shah Shoojah on the throne of Cabool, he preceded the army, in charge of the commissariat, and while so employed received the announcement of his having obtained the honor of knighthood and the brevet rank of lieutenant-colonel. In Sept. 1839, on the restoration of Shah Shoojah, Sir Alexander Burnes was made political resident at Cabool, with a salary of £3,000 a year. In this capacity he continued until Nov. 2, 1841, when on the outbreak of the Cabool insurrection, he was murdered, with his brother Lieut. Charles Burnes, and others. After his death was published "Cabool," in which he gave a narrative of his journey to, and residence in, that city in the years 1836, '7, and '8.

BURNET, a central county of Texas, formed in 1852 from Travis, Williamson, and Bell counties, and having an area of about 950 sq. m. It has a hilly and, in some places, mountainous surface, about  $\frac{1}{2}$  of which is occupied by a growth of oak, elm, and cedar. Marble is found in great abundance; beds of coal have been opened, and a few traces of gold have also been discovered. The staples are wheat and Indian corn. In 1857 there were 12,480 head of cattle, valued at \$62,000, and 1,227 horses, valued at \$53,100. The value of real estate was \$215,600, and the aggregate value of all taxable property, \$474,350. Capital, Hamilton. Pop. in 1856, 1,898, of whom 190 were slaves; slave pop. in 1857, 197.

BURNET, GILBERT, bishop of Salisbury, born in Edinburgh, Sept. 18, 1643, died in London, March 17, 1715. He took the degree of M. A. at Aberdeen before the age of 14, studied law for a short time, but at the age of 18 was licensed to preach. His sermons, from the first, were extempore. He declined a living, as being too young for such a charge. After visiting Oxford, Cambridge, and London, he travelled in the Low Countries and France. On his return, in 1665, he was made a fellow of the royal society, and soon after, accepting the living of Saltoun, in East Lothian, was ordained by the bishop of Edinburgh. He remained in Saltoun for several years, an active and useful pariah priest, and drew up a statement of the abuses practised by the Scottish bishops, avowing the authorship, for doing which Archbishop Sharpe proposed excommunication and deprivation. This did not take place; the rest of the hier-

archy objected to such extreme measures. In 1669 Burnet was elected divinity professor at Glasgow, where he continued for 4½ years, striving to steer a middle course between the 2 parties then contending for power. The Presbyterians feared that his moderation would lead to the promotion of episcopacy, and the Episcopalians believed that his aim was to exempt dissenters from their persecutions. In 1669 he published his first work, "A Modest and Free Conference between a Conformist and a Non-conformist." While compiling "Memoirs of the Dukes of Hamilton," from family archives at Glasgow (it was not published until 1676), he had occasion to visit London, where he is said to have refused a Scottish bishopric, on the plea of youth. On his return, in 1671, he married Lady Margaret Kennedy, daughter of the earl of Cassilis (a leader of the moderate party), and, on the day of their union, presented her with a deed securing the whole of her fortune to herself, in order to silence the imputation of having married a lady much older than himself from interested motives. In 1672 he published "A Vindication of the Authority, Constitution, and Laws of the Church," a treatise much at variance with his previous opinions, being so defensive of the doctrine of passive obedience that it was highly approved at court, and obtained for him the offer of a Scottish archbishopric, which he declined. In 1673 appeared his "Mystery of Iniquity Unveiled," and in the same year, while he was in London, he was made chaplain to Charles II., with whom, and also with the duke of York, he had several private interviews; but soon after his name was struck off the list of royal chaplains, because he opposed the arbitrary measures of the duke of Lauderdale. He resigned his Glasgow professorship, and removed to London, where he printed his "Truth of Religion Revealed," and was appointed preacher at the Rolls chapel, and lecturer at St. Clement's. In 1679, taking his stand with the Protestant party, he published the first volume of his "History of the Reformation," for which he received votes of thanks from both houses of parliament, and a request to complete it. The second volume appeared in 1681, when he also printed "An Account of the Life and Death of the Earl of Rochester," having attended that profligate nobleman at his own request. Dr. Johnson says: "It is a book the critic ought to read for its elegance, the philosopher for its argument, and the saint for its piety." In 1682 he published his "Life of Sir Matthew Hale," and some minor works, and wrote a private letter to Charles II., remonstrating with him on his public misgovernment and private licentiousness, and reminding him of the fate of his father. The king is said to have read the letter twice, and then thrown it in the fire, but ordered the bishopric of Chichester to be offered to the writer "if he would entirely come to his interest." Burnet declined; attended Lord William Russell on the scaffold in 1683; was dismissed from his

Rolls preachership and St. Clement's lecturership, by order of the king; and, on the death of Charles II., early in 1685, retired to the continent. After visiting Paris he travelled through the south of France, Italy, Switzerland, and the north of Germany, to Holland, and subsequently published an account of his journey in a series of letters addressed to Mr. Boyle. Visiting the Hague, on the invitation of the prince and princess of Orange, in 1786, he so actively took part in the preparations for a change of rulers in England, that James II. ordered him to be prosecuted for high treason, and demanded his person from the states-general; but without effect, as, by taking as his second wife a Dutch lady of great wealth, named Scott, he had previously acquired the rights of naturalization in Holland. This failing, James actually appropriated £8,000 to have him kidnapped. Burnet accompanied William to England, in 1688, as his chaplain, and was soon after made bishop of Salisbury. In the house of lords, Bishop Burnet declared himself to be in favor of moderate measures toward non-juring divines, and for the toleration of Protestant dissenters. He acted as chairman of the committee to whom the bill of rights was referred. In 1689 he preached the coronation sermon of William and Mary, "with all his wonted ability," says Macaulay, "and more than his wonted taste and judgment; his grave and eloquent discourse was polluted neither by adulation nor by malignity." Soon after his installation in Salisbury, he addressed to the clergy of his diocese a pastoral letter, in which was a paragraph capable of being taken as a declaration that the title of William and Mary to the crown might be grounded on the right of conquest. Three years afterward (Jan. 1693), it was moved in the house of commons, and, after 2 days' sharp debate, carried by a majority of 7 in a house of 322, that this pastoral letter be burned by the hands of the common hangman. Burnet made no complaint, and was generally pitied. He felt the insult deeply, and garrulous as he was in relating the most minute particulars concerning himself, has preserved a most significant silence, in the "History of his Own Times," as to this incrimination. In 1694 he preached the funeral sermon of Archbishop Tillotson; in 1695 he published "An Essay on the Character of Queen Mary;" in 1696, "A Vindication of Archbishop Tillotson." In 1698 he became tutor to the young duke of Gloucester, son of the princess Anne, and in the same year (having lost his second wife) married Mrs. Berkeley, a rich widow, the authoress of a "Method of Devotion." In 1699 appeared his celebrated "Exposition of the Thirty-nine Articles of the Church of England;" in 1710, "Church Catechism Explained;" and in 1714 the third volume of his "History of the Reformation." The introduction to this volume had appeared separately in 1712, and was severely dealt with by Swift. Having lived to witness the accession of the house of Hanover

to the English throne, he died of a pleuritic fever at the age of 72. He left 8 sons, one of whom (Thomas, afterward one of the judges of the common pleas) published a biography of his father, prefixed to a "History of his Own Times, from the Restoration of King Charles II. to the Conclusion of the Treaty of Peace in the Reign of Queen Anne." This, the most remarkable of Bishop Burnet's numerous works, was greatly ridiculed by Dean Swift, Arbuthnot, and Pope. "Memoirs of P. P., Clerk of this Parish," by the latter, is now the best known of these squibs. Macaulay, in the second volume of his "History of England," has drawn the character of Burnet, vindicating his integrity and ability.

BURNET, JACOB, judge of the supreme court of Ohio, and one of the founders of Cincinnati, born at Newark, N. J., Feb. 22, 1770, died May 10, 1853. He graduated at Princeton in 1791, was admitted to the bar in 1796, immediately after which he removed to Cincinnati, then a village with less than 500 inhabitants. He was a member of the territorial government of Ohio from 1799 till the establishment of a state government in 1803. He retired from the practice of his profession in 1816, while holding a distinguished rank as a lawyer, and after having been several times elected to the state assembly. In 1821 he was appointed judge of the supreme court of Ohio, and was soon after chosen by the legislature of Kentucky a commissioner to adjust matters in dispute between that state and Virginia. It was chiefly through his influence that the congressional act of 1821 was passed granting relief to the people of the west for debts due to the national government for lands. In 1828 he was elected U. S. senator, to fill the vacancy occasioned by the resignation of Gen. Harrison. Judge Burnet was an original member, and in many cases president, of the principal benevolent and scientific societies in Cincinnati, and was elected a member of the French academy of sciences upon recommendation of Lafayette. He published in 1847 an instructive volume of "Notes on the North-western Territories." The principal hotel of Cincinnati is called after him, the Burnet house.

BURNET, JAMES. See MONSODDO.

BURNET, JOHN, engraver, painter, and art-critic, born at Fisher-row, near Edinburgh, March 20, 1784. He learned etching and engraving during 7 years' apprenticeship to Mr. Robert Scott, of Edinburgh, and, together with the late Sir William Allan and the late Sir David Wilkie, was a student in drawing and painting at the trustees' academy, Edinburgh. In 1806 he went to London, where he engraved Wilkie's "Jew's Harp," "Blind Fiddler," "Rent Day," "Rabbit on the Wall," "Chelsea Pensioners Reading the Gazette of the Battle of Waterloo" (his largest and most elaborate work); "Letter of Introduction," "Death of Tippoo Saib," and "Village School." Mr. Burnet also engraved plates from several

recent painters, from the Rembrandts in the national gallery, and from several of his own paintings. He has written several illustrated works and manuals for artists.

BURNET, THOMAS, an English writer, born at Croft, in Yorkshire, about 1685, died at the charterhouse, London, Sept. 7, 1715. As master of the charterhouse school, he was the first Englishman to beard James II. in his arrogation of the dispensing power. By the constitution of the charterhouse the pensioners must take certain oaths of allegiance and supremacy. James sent down a candidate, Andrew Popham, for election to the charity, accompanying his mandate with a dispensation from the usual oaths, Popham being a Roman Catholic. The candidate was introduced by Chancellor Jeffries, one of the governors. Burnet at once denied the king's dispensing power, and refused to receive Popham. In this he was supported by his patron the duke of Ormond. Jeffries stormed and blustered, but the candidate was rejected. After the revolution Burnet was made clerk of the closet to William III. on the recommendation of Archbishop Tillotson, whose pupil he had formerly been. He lost the court favor, and his hopes of preferment, by an essay in which he treated the Mosaic account of the fall as allegorical. His principal works were written in Latin, of which the "Sacred Theory of the Earth," once had a high reputation for erudition and imaginative power.

BURNET'S CREEK, a tributary of the Wabash, in the state of Indiana. It is near the scene of the battle of Tippecanoe, fought in Nov. 9, 1811.

BURNETT, JOHN, an English dissenting minister, born in Perth, Scotland, in 1790. He was apprenticed to the craft of shoemaking, which he abandoned before he had completed his apprenticeship, enlisting as a private soldier in an infantry regiment. Here he devoted his leisure to study during several years, and then occasionally preached to a small Independent congregation in Glasgow. His sermons attracted so much attention that crowds went to hear them, and a sufficient sum was subscribed to purchase his discharge from the army. He was placed in pastoral charge at Glasgow, where he continued for several years. About 1824 he accepted charge of a church in Cork, where his popularity increased. In 1827, when visiting London, he was drawn into a public discussion, which lasted several days, before fashionable audiences in the Argyle rooms, with Mr. Joseph O'Leary, a Catholic gentleman, also from Cork, respecting the tenets of the church of Rome. He received a call from an Independent congregation at Camberwell, in charge of which he still continues.

BURNETT, WALDO IRVING, M. D., an American naturalist and microscopist, born in Southborough, Mass., July 12, 1828, died in Boston, July 1, 1884. He inherited his love of nature from his father, and in early boyhood began his study of entomology, which he continued

through life. Unwilling to subject his father to any unnecessary expenses, he gave up the advantages of a collegiate education; possessed of great mental activity, he easily mastered the usual branches of knowledge, and was especially proficient in mathematics; at a later period he made himself familiar with the French, German, and Spanish languages. His father was a physician, and under his guidance he commenced the study of medicine, graduated in 1849, and soon after visited Europe, where his attention was given almost exclusively to natural history and microscopic observation. Pulmonary consumption now began its course, and the remainder of his life was spent in changing from place to place, to mitigate, if possible, his disease. During the last 5 years of this unsettled life, he accomplished an almost incredible amount of intellectual labor, the results of which may be found in the "Proceedings" and "Journal of the Boston Society of Natural History," in the "Memoirs of the American Academy of Arts and Sciences," in the "American Journal of Science," in the "Transactions of the American Medical Association for 1853," and in the "American Journal of Medical Science." Beside a great number of minor articles, the principal work of his life was the "Prize Essay," published by the medical association, on "The Cell, its Physiology, Pathology, and Philosophy, as deduced from Original Observations; to which is added its History and Criticism." He was engaged, to the end of his brief career, in translating from the German the "Comparative Anatomy of Siebold and Stannius."

BURNEY, DR. CHARLES, an English historian of music, born at Shrewsbury, April 7, 1726, died in London, April 15, 1815. At the age of 18 he came under the tuition of Dr. Arne, with whom he studied for 8 years in London. In 1749 he was appointed organist of a church in Fenchurch street, and in the same year produced at Drury lane 3 musical dramas, "Robin Hood," "Alfred," and "Queen Mah." For the next 9 years he lived at the town of Lynn Regis, in Norfolk, fulfilling the duties of organist, on a salary of £100, and compiling materials for his "History of Music." In 1760 he returned to London, where he brought out a number of instrumental compositions, and an adaptation of Jean Jacques Rousseau's operetta, *Le devin du village*. One of his most admired works was an elaborate anthem, performed on the occasion of receiving his degree of doctor of music at Oxford in 1769. In the following year, with a view of obtaining further materials for his "History of Music," he visited the principal cities of France and Italy, and in 1771 published the result of his observations in a volume entitled "The Present State of Music in France and Italy," which Dr. Johnson made the model of his "Tour to the Hebrides." In the succeeding year Dr. Burney made a similar tour through Germany and the Neth

erlands, and published the result in 2 volumes. The 1st volume of his "History of Music" appeared in 1776, the 2d in 1782, and the 3d and 4th in 1789, the whole having occupied 30 years in meditation, and over 20 in writing and printing. Dr. Burney's remaining works are a notice of young Crotch, afterward distinguished as a musician; a life of Metastasio, and the musical articles in Rees's "Cyclopædia." He was twice married, and had a family of 8 children, of whom the eldest created a sensation in London in her youth by her remarkable performances on the harpsichord. His 2d daughter was Madame D'Arblay, the novelist.—CHARLES, D.D., 2d son of the preceding, and a man of great learning, born at Lynn, in Norfolk, England, in 1757, died in 1817. He contributed to the "Monthly Review" many articles on classical literature. The profits of his literary labors were mostly expended in the formation of a library, which was purchased by the nation after his death, and now forms part of the library of the British museum.

**BURNEY, FRANCES.** See ARBLAY, MADAME D'.

**BURNING FLUID**, a mixture of alcohol and camphene (the pure oil or spirits of turpentine), made with varying proportions of the ingredients, and called by various names, as well as by the general name of burning fluid. The object of the mixture is to produce an illuminating agent, in which the feeble blue light of the more hydrogenous alcohol shall be brightened by the larger proportion of carbon introduced in the carbo-hydrogen, camphene. This, if burned alone, is apt to give a sooty flame from its excess of carbon. (See CAMPHENE.) By uniting them, any desirable proportion of carbon and hydrogen is obtained, and the flame resulting from their combustion is clear, yellow-colored, and exceedingly agreeable. The liquid also is clean in use, and free from the disagreeable qualities of the oils, so that it has become highly popular in common use for lamps, in spite of the terrible accidents which are every day occurring in consequence of the highly explosive nature of its vapor. This invisible vapor, as it escapes from the surface of the fluid, may be ignited by coming in contact with the flame of a lamp, or even with the red-hot surface of a stove. The effect is like that produced by carrying a light into a room in which gas has collected from a leak of the gas-pipes. The flame is instantly communicated through the air to the vessel containing the fluid, and this being scattered about every thing around is enveloped in fire. Burning fluid is thus seen to be a more dangerous substance to have in a house than gunpowder; for the latter produces no subtle vapor, that may be stealing through the air to explode on meeting a spark of fire; on the contrary, some highly heated body must be brought into actual contact with the visible solid body to produce an explosion. Notwithstanding this, and the palpable fact that lives have been daily sacrificed for years

past, and still continue to be, in using this substance, no restrictions have been imposed by legislative bodies upon its free employment, and the sale of it to be introduced into families entirely ignorant of its dangerous qualities. And what, perhaps, is still more strange, those who are informed of its character, and know of the sad effects constantly resulting from its use, and who would look with horror upon a can of gunpowder kept in their houses, do not hesitate to introduce this into their families, to be daily handled by servants and children, careless and unconscious of its qualities. It is true that numerous ingenious devices have been contrived by which the risks of explosion are diminished. Modifications of Sir Humphry Davy's safety lamp have been invented, which testify by their very precautions to the enormity of the danger they are designed to guard against. Even the cans which contain the fluid that generates the explosive vapor are fortified like the lamps that burn it, and many feel secure and justified in continuing to employ the article thus protected. The ingenious lamp of Mr. Newell of Boston is constructed with a fixed cylinder of fine wire gauze, extending to the bottom of the cavity for the fluid. The gauze has 500 holes to the inch. A tube made of the same kind of gauze incloses the wick, and is secured by screwing into the top of the cylinder within which it is contained. The disk on the top of the wick tube is perforated with a number of small holes, to establish a communication between the external air and the cavity within the lamp. These are to allow of the escape of the vapor, if any should be suddenly produced on the surface of the fluid, which, if confined, might cause the lamp to burst. The can is provided with a gauze diaphragm in the spout and another under the lid. In case of accidental ignition while filling the lamp, the combustion cannot extend beyond the gauze; but if the gauze happen to meet with any injury, this may be entirely unsuspected, and the contrivance is then worse than useless. The lamp, too, if of glass, is liable to be broken by a fall or otherwise, and thus create an explosion. Where the lamps are indispensable, as in working coal mines, the atmosphere of which is liable at any moment to be filled with fire damp, such protections, imperfect as they must be, cannot be too highly prized; but when used only for the more agreeable light they give, or for an imaginary economy, they may be admired for their ingenuity, while we may lament this was not directed to meet the root of the evil, and provide a harmless substitute for the fluid itself. It would seem that this ought to be obtained in benzole or some similar substance. An exceedingly ingenious improvement upon Newell's lamp has been invented by Mr. Solomon Andrews, of New York. This lamp is so contrived, that if thrown down and broken, the flame is extinguished before the vapor can reach it. A metallic tube passes from the burner down to the bottom of the fluid in the

lamp, and in this tube is what may be called a wick of silver wire, which serves the double purpose of conveying heat down the tube to volatilize a portion of the fluid, and also to raise the fluid up by capillary action toward the burner, near which it is, by the heat, converted into vapor, and thus passes through the burner like common gas. The burner is first heated by applying a flame to it, and the gas being once ignited, it continues to furnish, by its combustion, sufficient heat to keep up the supply. The lamp cannot be refilled without unscrewing the burner, which extinguishes the flame, and thus prevents an explosion from this common cause. By such ingenious contrivances the use of the material is probably rendered as nearly safe as its nature admits.

**BURNING GLASS AND BURNING MIRROR**, instruments to concentrate the sun's heat. The usual burning glass is simply a double convex lens, which brings the rays of solar heat to a focus at nearly the same point at which it brings the rays of light. Artificial heat cannot, in general, be brought to a focus by a glass lens; but a lens of rock salt will bring heat radiating from any source to a focus. The use of burning glasses, or burning crystal, is alluded to by Aristophanes, and several writers declare that Archimedes fired the Roman ships by means of burning mirrors. In the 17th and 18th centuries many experiments were made with burning glasses of immense size. Tschirnhausen made several, some of which are still at Paris, 33 inches in diameter. In 1774 Lavoisier and Brisson superintended the making of a lens 4 feet in diameter, of 2 glasses like watch crystals, with various fluids between. This is called Trudaine's lens, from the gentleman who bore the expense. About the year 1800, a Mr. Parker of London made a lens 8 feet in diameter, which is now at Pekin. The heat from these large lenses is intense, and capable of melting any stone or mineral in a few seconds. Equal effects may be obtained from mirrors. Heat is reflected like light, and a concave mirror brings both to a focus. About 1670 a M. Vilette of Lyons constructed several mirrors of polished metal, from 80 to 50 inches in diameter. Tschirnhausen made one of copper nearly 5 feet in diameter. Buffon (who was the first to suggest a lens made of several pieces, afterward brought to perfection by Fresnel, and of great use in lighthouses) made a large reflector of several hundred smaller ones, each 6 inches by 8. With this he set fire to wood at the distance of 210 feet, proving the possibility, though not the probability, of Archimedes having thus burned the Roman fleet. Within a few years, it having been shown that the sun's rays have a heating power partly proportioned to the heat of the place into which they shine, the galvanic flame of a large battery has been made to play through the focus of a large burning glass, and thus the most intense heat ever witnessed has been produced, beyond all reasonable comparison with those tempera-

tures that can be measured by degrees. In all these experiments the most blinding light accompanies the heat, which renders it somewhat difficult to observe the effects. Priestley's "History of Optics," Bossut's *Histoire des mathématiques*, the "Memoirs of the Paris Academy" for 1777, and Buffon's supplement to his "Natural History," will give further information to those who desire it.

**BURNISHING**, the last finish given to metallic articles, which consists in polishing by means of blunt instruments of steel, agate, copper, or a dog's tooth, rubbed over their surface. Vessels of round shape are turned in a lathe, and the burnishers are then conveniently applied to them; when of unsuitable form to be thus polished, the work is done by hand, and is very rapidly accomplished by an experienced workman, the tool quickly entering into the numerous interstices, and cleaning the surface of the metal of the slight film, of imperceptible thickness, which obscures its brightness.

**BURNOUF**, EUGÈNE, a French orientalist, born in Paris, Aug. 12, 1801, died there May 23, 1852. Shortly before his death he was appointed perpetual secretary of the academy of inscriptions, of which he had been a member since 1832. His principal work, *Introduction à l'histoire du Bouddhisme*, founded on the researches of Mr. B. H. Hodgson, was completed in 1844.

**BURNS**, ROBERT, the great national poet of Scotland, born Jan. 25, 1759, died July 21, 1796. A clay-built cottage, 2 miles south of the town of Ayr, and in the vicinity of the kirk of Alloway and the "auld brig o' Doon," was his birthplace. His parents were peasants of the poorest class, but honest, diligent, and respectable. They were eager for the moral and intellectual improvement of their offspring, and lost no opportunity for supplying them with the rudiments of education. Robert, in the interval of driving the plough, and other farm work, soon made himself a master of English. His chief reading books were the Bible, Mason's Collection of Prose and Verse, the "Life of Hannibal," and the history of Sir William Wallace. Later in life he attempted to learn French and Latin, without much success; but when the "Spectator," Shakespeare, Pope, and particularly the poems of Allan Ramsay, were put into his hands, he devoured them with avidity. His first attempt in verse, after the family had removed to Lochlea, was made toward his 16th year. "A bonnie, sweet, sonsie lass," as he says in a letter to Moore, "who was coupled with him in the labors of the hay-harvest," awoke his early inspiration; and thus he began, as he continued, his literary career in poetry and in love. Robert and his brother Gilbert were employed by their father, as regular day-laborers, at £7 per annum, until Robert's 19th year, when he went to the school of Kirkoswald, to learn mensuration and surveying. As it was situated on a smuggling coast, he fell in there with the bold characters of the contraband trade, which enlarged his knowledge of human nature, if it di-

not improve his manners. During this time he wrote and had printed the "Dirge of Winter," the "Death of Poor Maillie," "Maillie's Elegy," and "John Barleycorn," in which he discovered that deep fountain of pathos and humor which afterward rendered him famous. In 1781-'2 he removed to Irvine to learn the trade of flax-dresser, in which, however, he did not make much progress, while he fell in with a kind of society not at all advantageous to his morals. He had always been an admirer of women, and his intercourse with them was of the most irreproachable kind, until at Irvine he was furnished with the subject of the "Epistle to John Rankin," for which offence, according to the custom of Scotland, he was compelled to do penance in church, before the congregation. It would appear from the two poems written on the same occasion, "The Poet's Welcome," &c., and "The ranting dog, the daddy o'," that the poet rather gloried in his shame than repented of it. A short time before the death of his father, 1783, whose thickening misfortunes cast a gloom over the whole family, he and his brother took a farm at Mossgiel, with a view of providing shelter for their parents; but a life of the intensest labor and severest economy was scarcely able to keep their heads above water. In the midst of his distresses, he did not neglect the muse, and several satirical pieces, such as the "Holy Tailzie," not contained in the common edition of his works, "Holy Willie's Prayer," the "Ordination," the "Holy Fair," and others, chiefly levelled at the churchmen, won him a wide local reputation. But he showed himself capable of better things than these, and to his residence at Mossgiel are to be referred the verses to a "Mouse," to a "Mountain Daisy," "Man was made to mourn," and that sweetest of pastorals, the "Cotter's Saturday Night;" beside innumerable love songs, some of them the finest in the language, none of which, he says, related to imaginary heroines. His want of success in the farm put him upon the project of going to Jamaica in the West Indies, and in order to help himself to a part of the expenses, he proposed to publish a collection of his writings. An irregular love-connection, which he desired to consummate by marriage, contributed, no doubt, to the formation of this resolve. Accordingly, in the autumn of 1786, he issued 600 copies of his poems at Kilmarnock, from which he derived assistance enough (£20) to enable him to procure a passage in a ship about to sail from the Clyde. He was then "skulking from covert to covert," as he says, "to hide from the merciless pack of the law," which the relatives of the mother of his children set upon his heels. His chest was on the road to Greenock, and he had written "The gloomy night is gathering fast," as a kind of farewell to Scotland, when a letter from Dr. Blacklock to a friend of his arrested the execution of his purpose. This letter recommended a visit to Edinburgh, with a view to receive the applause which his poems had excited, and to arrange for the issue of a

new edition. Burns went to the metropolis, and for more than a year was admired, caressed, fêted, and flattered, by persons of all ranks, and particularly by those of eminence and influence, as few men before him ever had been. He retired to his home with the sum of £500 in his pocket, the result of the new publication. Nearly the half of this he gave to his brother, for the farm at Mossgiel, and the residue he applied to stocking a new farm for himself, at Ellisland in Dumfriesshire. There, in 1788, he married Jane Armour, with whom he had previously formed a union. At the same time he became an officer of excise in the district in which he lived, and between his farm, his office, and an occasional poem, he managed to eke out a poverty-stricken and miserable existence. His salary was £50 a year, afterward increased to £70; but the duties of the place, together with his convivial habits, interfered so much with the labors of the farm, that the latter yielded him little or nothing, and he was compelled to surrender it to the landlord. A hand-to-hand grapple with poverty and care was thenceforth his gloomy fate. Toward the close of the year 1791, he retired to a small house in the town of Dumfries, where he supported himself and his family on his official stipend, and by random contributions to Johnson's "Museum," and Thomson's "Collection of Original Scottish Airs." But his habits of intoxication, ill health, and disappointment as to his prospects of promotion, soon undermined his constitution, and in his 37th year he died. During his illness, in which he comported himself with a manly and noble resignation, his good humor never deserting him in the darkest hours, it is said that his humble home was like a place besieged. The anxiety in regard to him, not of the mechanics and peasants only, but of the rich and learned, exceeds all belief. Whenever two or three persons met in the streets, their talk was of Burns, and of him alone. They spoke of his history, of his works, of his person, of his poems, and of his untimely and approaching fate; but all this was a sympathy which came too late. His funeral was a public one, attended by vast multitudes, from all parts of the country. During the excitement, there was some talk of raising a monument to his memory, but the purpose was not fulfilled till the year 1818. He left 4 sons, 2 of whom entered the East India company's service; but all of them are now dead.—The poetry of Burns will live forever, because it sprung directly out of the human heart, to the deepest and noblest emotions of which it appeals. Without evidences of culture, without that grand or powerful imagination which makes a Shakespeare or a Milton, aspiring only to the humblest flights of poetic art, it is yet so profoundly fraught with passion, so instinct with melody, so true to nature, so artless in its grace, that every bosom capable of feeling must be touched either by its pathos, its beauty, or its mirth. He had "an inspiration for every fancy, a music for every

mood." In the simple, the naïve, the sweet, he is scarcely more distinguished than he is in the grotesque, the wild, and even the terrible. His "Tam O'Shanter" displays a narrative ability of the first order, while his "Jolly Beggars" is filled with dramatic power. But his peculiar strength was the lyrical, and his songs, infinite in number as they are matchless in emotional gush and tenderness, will be the delight of the human heart so long as the warm blood rushes through it, or the tongue is able to articulate. The American poet Halleck has done the amplest justice to the genius of Burns of any of his kindred, and but reëchoes the universal judgment of criticism, when he says:

There have been loftier themes than his,  
And longer scrolls, and louder lyres,  
And lays lit up with poesy's  
Purer and hollower fires;  
Yet read the names that know not death,  
Few nobler ones than Burns are there,  
And few have won a greener wreath  
Than that which binds his hair.

As a man, Burns was generous to a fault; independent and scorning meanness; exquisitely entertaining in conversation; and, though at times wild and reckless, with a deep and mighty undercurrent of religious feeling in his soul.—ROBERT, son of the foregoing, born at Manchline, county of Ayr, Scotland, in Sept. 1786, died in Dumfries, May 14, 1857. He was an accomplished scholar, an enthusiastic student of the Gaelic language, a proficient in music, and of some poetical ability.

**BURNS AND SCALDS.** Burns are produced by heated solids, or by the flames of some combustible substance, solid, liquid, or gaseous; scalds are produced by heated steam or liquid. The worst burns which occur commonly arise from the explosion of gunpowder or inflammable gases, or from the dresses of children or of females catching fire; the worst scalds, from accidents in breweries, manufactories, laboratories, and steamboats. The severity of the accident depends mainly on the intensity of the heat of the burning body, together with the extent of surface and the vitality of the parts involved in the injury. The immediate effect of scalds is generally less violent than that of burns. Fluids, not being capable of acquiring so high a degree of temperature as some solids, cannot act with the same violence on a given point; but, flowing about with great facility, their effects often become more serious by extending to a very large surface of the body. A burn which utterly and instantaneously destroys the part it touches may be free from dangerous complications if the injured part be circumscribed within a small compass; while a scald apparently much less severe in its immediate effects, being more or less diffused, is always attended with different degrees of injury in different parts of its course, and may be very serious in its results, although apparently less violent in its first effects on any given part. The extent of the surface involved, the depth of the injury, the vitality and the

sensibility of the parts affected, must all be duly weighed in estimating the severity and the danger of an accident in any given case of burn or scald. In ordinary burns and scalds the immediate seat of injury is the skin or the external surface, one of the most vital parts of the frame. The skin is a highly organized membrane, endowed with the most acute sensibility. Burns and scalds, therefore, are more dangerous in proportion to the amount of surface involved than in proportion to the depths attained in a limited extent, for the outer layers are the most highly organized and sensitive parts of the cutaneous system. The outermost of all, however, being a mere coat of horny varnish, is the least sensitive; and where the injury is slight and altogether superficial, though extensive, the mischief is but trifling at first, and may be easily remedied, although unpleasant complications may ensue if the superficial injury is neglected, and the parts beneath are long exposed to the action of the air, which causes irritation, pain, and inflammation. The physiological obstruction long continued, and the shock to the whole nervous system, being more than the vital forces of the organism can withstand, no treatment can prevent a fatal termination to the sufferings of the patient in cases of excessively severe burns and scalds; but the worst cases might often be avoided by a little knowledge and self-possession on the part of the sufferer at the time of the accident, and a fatal contingency be transformed into a temporary injury. Everybody should, therefore, have some knowledge of the best course to pursue in case of such an accident happening either to themselves or to others near them at the time.—Where the body is enveloped in flames, from the clothes being on fire, the first thing to be done is to lie down on the floor and roll the carpet or a rug, or any cloth or garment, closely round the body, so as to exclude the air from the burning dress, and thus put out the flame. Or, lie down at once and roll the body over the burning clothes, calling to some one near to throw a blanket or a cloth of any sort, wet or dry, or water, over you as you lie on the floor, stifling the burning clothes between your body and the ground. And if the clothes of a child or a grown person near you should take fire, pursue the same method. The upright position is the worst, being favorable to the spread of the flames, and allowing them to reach the upper and most vital portions of the body, trunk, head, face, and neck. Fright causes children to run screaming to and fro for help, and this increases the currents of surrounding air, and helps the flame to spread more rapidly. The body should be quickly enveloped closely, in a wet or a dry garment or a blanket, a curtain, or table cloth, or any thing which may be at hand; the main thing being to extinguish the flames by shutting out the air, which gives them life, and without which they cannot be. There is no danger in the operation, because the moment the flames

are enveloped and the air is shut out, the fire is extinguished; the boldest and most rapid action therefore is the best, the most prudent, and least dangerous to all the parties concerned. Merely hugging the child rapidly and closely in your arms, and rolling slowly on the floor with it, enveloping the flaming part with any portion of your own dress, will stifle out the air and flame together. Presence of mind alone suffices. In every case, and under all conditions, the main thing to be done at first is to stifle the flames by shutting out the air. Wrapping up the body in any thing, and lying on the floor, are the two things to be first thought of.—When the accident has happened, the burned or scalded parts should be immersed at once in cold water, or enveloped in wet cloths, or in dry cotton, or in flour, bran, or oiled calico, or any thing which is convenient to keep out the air, from the injured surface of the skin. Immersion in cold water is the best, where it is practicable; because it not only shuts off the air but causes a rapid rush of temperature from the injured tissues to the cold water, analogous to the violent rush of heat from the burning or scalding medium to the skin in the first instance, though in an opposite direction; and this inverse reaction soothes the nerves of sense, and thus answers the first requirement by diminishing the shock to the whole system from intensity of pain.—Some persons recommend stimulating lotions of brandy or spirits of wine, oil of turpentine, or vinegar, kept on the injured parts by means of lint, cotton, or old linen soaked in the liquid; others prefer soap and water, with or without creosote; and much difference of opinion exists with regard to the best means. An oil-skin, a soapy film, a coat of simple ointment, or of cotton-wool, or flour, or any thing which will exclude the air and not irritate the injured parts, will serve the purpose very well; and all the theories about peculiar modes of action in the various stimulating substances, are more or less, it would appear, imaginary adjuncts to the simple fact of keeping out the air. When the pain has been arrested by the action of cold water, a delicate soap-and-water film upon the injured parts, surrounded by an oil-skin, or a layer of cotton-wool, and bandaged carefully, to keep the application in its place, are all that is required in ordinary cases of burns and scalds, until medical assistance be procured to treat the constitutional disturbance and take charge of the patient.

**BURN'T ISLAND**, commonly pronounced *Brunt Island*, a parliamentary borough, seaport town, and parish of Scotland, on the frith of Forth. The town is clean, well built, and has the best harbor on the frith, a lighthouse, and a dry dock. It is the steamboat ferry station on the passage of the Edinburgh and northern railway. The inhabitants are chiefly occupied in distilling, and in the fisheries.

**BURN'YEAT**, JOHN, one of the earliest preachers of the society of Friends, born at Orabreck, Cumberland, in 1681, died in Dublin,

July 11, 1690. He travelled in England and Ireland, and in 1672 he came with George Fox to America. In his "Memorials" much may be gathered of the actual condition of Maryland and other colonies, through which he passed from New England to North Carolina. He was a zealous advocate of the creed of the society of Friends, and bravely bore the many persecutions to which he was subjected.

**BURR**, AARON, an American politician, and 3d vice-president of the United States, born at Newark, N. J., Feb. 6, 1756, died on Staten Island, Sept. 14, 1836. He was of German extraction, and the son of the Rev. Aaron Burr; his mother was a daughter of Jonathan Edwards, the eminent theologian. Before he was 8 years old his parents died, leaving him a considerable estate. He entered the sophomore class of Princeton college in 1769, and graduated in 1772. At the outbreak of the revolution, Burr enlisted as a private, and joined the force before Boston. He volunteered for the expedition against Canada, and accompanied Arnold upon his toilsome march through Maine. He took part in the attack upon Quebec, and is said to have stood beside Gen. Montgomery when he was killed. For his conduct in the Canadian campaign, Burr was raised to the rank of major, and invited to join the family of Gen. Washington. Some event soon occurred, the precise character of which is not known, which compelled Burr to leave headquarters, and produced in the mind of Washington an impression against him which was never removed. As aide-de-camp to Gen. Putnam, Burr was engaged in the defence of New York, and shortly after (1777) was promoted to a lieutenant-colonelcy, with the command of his regiment, the colonel being a civilian. He was in the camp at Valley Forge, and distinguished himself at the battle of Monmouth, where he commanded a brigade in Lord Stirling's division. During the winter of 1778 and 1779 he was stationed upon the lines in Westchester county, N. Y.; early in the following spring he resigned his commission. He was led to take this step partly by ill health, but still more, it is supposed, by disappointment at not being more rapidly promoted. Burr belonged to the Lee and Gates faction; he always affected to despise the military talents of Gen. Washington; and it is not improbable that these circumstances interfered with his professional career. In 1782 Burr was admitted to the bar at Albany, and in July of the same year he married Mrs. Provost, the widow of a British officer who had died in the West Indies. In 1788 he entered upon the practice of his profession in the city of New York, and soon obtained a lucrative business.—In politics, Burr's success was rapid and brilliant. In 1784 he was elected to the state legislature; he was appointed attorney-general of New York in 1789, and United States senator in 1791. While in the senate, several influential members of congress recommended him for the mission to France, but Washington, with marked emphasis, refused



to appoint a man of Burr's character to so important a post. He left the senate in 1797, and the following year was returned to the state legislature. Some aspersions upon his conduct while in that body, which were thrown out by John B. Church, led to a duel between Burr and that gentleman, in which, however, neither party was injured. Mr. Burr was very efficient in the presidential canvass of 1800. To his efforts may be attributed the success of the republicans in New York, upon the action of which state the result in the Union depended. On account of the prominence he thus obtained, the friends of Mr. Jefferson brought him forward for the vice-presidency. An equal number of votes having been, by a sort of mischance, thrown for Jefferson and Burr in the electoral college, the election of a president devolved upon the house of representatives. Most of the federal members, taking advantage of the singular turn in affairs, supported Burr. The contest lasted several days. Upon the 36th ballot Jefferson was chosen president, and, in accordance with the provisions of the constitution at that time, Burr became vice-president. His conduct in permitting himself to be used by his political opponents, in order to defeat the candidate of his party, and whom he himself had supported, dissolved his connection with the republicans, and destroyed his political influence. The federalists nominated him for governor of New York in 1804. Some of the leading men of that party refused to support him, and he was defeated. The contest was bitter, and led to a duel between Burr and Col. Hamilton, in which the latter was killed. This unfortunate event occurred July 11, 1804. Burr was compelled to give up his residence in New York. After his retirement from the vice-presidency, in April, 1805, he made a journey to the southwest. His conduct gave rise to the suspicion that he was organizing an expedition to invade Mexico, with the purpose of establishing an empire there which should embrace some of the south-western states of this confederacy. He was arrested in Mississippi, and taken to Richmond, Va., for trial, upon an indictment for treason. After a protracted investigation before Chief Justice Marshall, under a ruling of the court upon a point of law, which did not touch the merits of the case, the prosecution was abandoned, and Burr was acquitted, Sept. 1807. In 1808 he went to Europe, expecting to get means to carry out his Mexican design. He was disappointed; and after living abroad 4 years, part of the time in extreme poverty, he returned to America in 1812. He resumed his profession in New York, but never regained his former position at the bar, and died in the 81st year of his age. Mr. Burr had but one child, the accomplished Theodosia Allston, who was lost at sea, Jan. 1813. In person he was below the medium height, but his manners and presence were very attractive. His chief power consisted in his skill in enlisting the good will and sympathy of those with whom he came into

contact. To this he mainly owed his political influence. He was always surrounded by a large circle of attached and obedient friends. He was notorious for his gallantries, and preserved all the letters which were written in the course of his numerous amours. It is a strange exhibition of character, that in extreme old age it was his greatest pleasure to read these records of youthful intrigue and passion. He was tenacious of his reputation as a soldier. "It is not unlikely that he was correct in the opinion which he was accustomed to express, that his talents were best adapted to a military career. He was an adroit, persevering, but not a great lawyer. He cannot, in any sense, be said to have been an orator; yet he was an effective and ready speaker. It has been usual to regard Burr as a brilliant, and even a great man, who was led astray by moral obliquity. In regard to the looseness of his principles, there can be no doubt; but there is as little reason to doubt that his talents have been greatly exaggerated.—A memoir of the life and times of Burr, by James Parton, was published in New York in 1867.

**BURRAMPOOR**, a town of British India, presidency of Madras, province of the Northern Circars, and 20 miles S. W. of Ganjam. Pop. estimated at 20,000. It is sometimes confounded with the town of Berhampoor in Bengal. Situated a few miles from the western shore of the bay of Bengal, in a cultivated plain, shut in by lofty hills, and abounding in perennial springs, it is a favorite resort for the government officials of Ganjam during the unhealthy months of the wet season. The weather from October to February is clear, cool, and healthy, the thermometer ranging from 50° to 75°. In April and May, fevers and rheumatism prevail; in June the S. W. monsoon commences, and is succeeded by the N. E. in September. The soil of the vicinity of the town is dry and sandy. The streets resemble those of most Indian towns, being narrow, dirty, and lined with badly built mud houses. There are a few brick buildings, however, a multitude of Hindoo temples, and numerous well-stocked bazaars. Sugar and sugar candy are manufactured in large quantities, and silk and cotton are produced to some extent. Near the town is a military cantonment, which was occupied at the period of the outbreak in 1857 by a regiment of native riflemen, who remained true to their allegiance.

**BURRAMPOOTER**. See **BRAHMAPOOTRA**.

**BURRILL, JAMES**, an American senator, born in Providence, R. I., April 25, 1772, died Dec. 25, 1820. He graduated at Rhode Island college, now Brown university, in 1788, and studied law with Theodore Foster and David Howell, both afterward senators in congress. In 1791 he began the practice of the law. In 1797 he was elected attorney-general, and held the office nearly 16 years, until 1813, when the state of his health compelled him to resign the office and his profession together. In 1814 he was chosen speaker of the Rhode Island house of representatives, and in 1816 chief justice of the state. In 1817

he was elected senator in congress, and died in Washington, D. C., before the expiration of his term. He was an accomplished scholar, especially in history; an admirable and successful advocate, and a wise judge. In the senate he was distinguished for the part he took in the debate upon the Missouri compromise, to which he was inflexibly opposed.

BURRITT, ELIHU, "the learned blacksmith," an American reformer, born in New Britain, Conn., Dec. 8, 1811. The son of a shoemaker, he was educated in the common schools of his native village, and at the age of 16 was apprenticed to a blacksmith. An early conceived project of reading the Scriptures in their original languages led him to philological studies in the intervals of labor, and by diligence and a remarkable facility he was soon able to understand works in several languages. He removed to Worcester to have advantage of the library of the antiquarian society there, and while still plying his trade became acquainted with the principal ancient and modern languages. A few translations are the only results of his philological learning that have been given to the public. In 1844 he edited at Worcester the "Christian Citizen," a paper advocating a peaceful settlement of international difficulties. To the same end he delivered many public lectures. In 1846 he went to England, where he formed the "League of Universal Brotherhood," whose object was "to employ all legitimate means for the abolition of war throughout the world." He was constantly engaged in writing and lecturing, and took a prominent part in all the European peace congresses. He returned to America in 1853. The promotion of temperance, a cheap ocean postage, and the abolition of American slavery, have been objects of his continued exertions. Among his recent public propositions, is one that the national government extinguish slavery in the southern states by purchasing and freeing the slaves. His principal publications have been "Sparks from the Anvil," in England, in 1848, and "Thoughts and Things at Home and Abroad," Boston, 1854.

BURROUGHS, GEORGE, a minister of New England, executed for witchcraft at Salem, Mass., Aug. 19, 1692. He was graduated at Harvard college, in 1670, was a preacher at Falmouth, now Portland, Me., in 1676, and at Salem in 1680. In consequence of some dispute with his people, he returned to Portland in 1683, but when that town was destroyed by the Indians in 1690, came back to Salem. Though a person of unblemished character, he became one of the victims of accusation by the confessing witches. It was testified that 2 of his wives had appeared to the witnesses, saying that he was the cause of their death, and threatening if he denied it to appear in court. He was also accused of performing feats of extraordinary strength by diabolical assistance, such as carrying a barrel of molasses, holding out a gun by a finger placed in the muzzle, and of being "tortured, afflicted, pined, consumed,

wasted, and tormented" one Mary Wolcott. Although he asserted his innocence so as to draw tears from the spectators, and recited the Lord's prayer, which it was supposed no witch could repeat without mistake, he was condemned.

BURROUGHS, STEPHEN, an American adventurer, remarkable for his talents and diversified career, born at Hanover, N. H., in 1765, died at Three Rivers, in Canada, Jan. 28, 1840. The son of a Congregational clergyman, his vicious jokes and propensity to trick people into misadventures, made him early reputed the worst boy in town. At the age of 14 he ran away from home to join the army, which he presently deserted. After studying under a clergyman in Connecticut, he entered Dartmouth college, where he often passed his nights in overturning outhouses and woodpiles, plundering gardens, and riding old horses. He escaped detection in his offences, but left the college clandestinely before graduating. Having performed successfully as privateersman, ship's physician, and schoolmaster, he at length determined to go where he was unknown and preach. Under the name of Davis he had excellent success as pastor of a Congregational church in Pelham, Mass., until after nearly 6 months his character was revealed by persons who had formerly known him. He had already entered into relations with a gang of counterfeiters, and while still occasionally preaching was arrested in Springfield for passing counterfeit money. Being convicted, he was removed to Northampton for imprisonment, where he suffered almost constantly the pains of hunger, and for his numerous attempts to escape was loaded with chains. In extreme impatience of confinement, he sought to end his sufferings by firing the gaol, and he speaks of the tranquil horror with which he saw the flames bursting forth about him. He was afterward removed for imprisonment to Castle island in Boston harbor, whence he effected his escape with 7 other prisoners, but was retaken through the stupidity of his associates. Released at length from prison life, he repaired to Canada, where for many years he was at the head of an association of counterfeiters, and kept the deposit of the bills. In the latter part of his life he thoroughly changed his conduct, entered the communion of the Roman Catholic church, and passed his last years in receiving and educating at his residence the sons of wealthy Canadian gentlemen. He was beloved by his pupils, had an extensive library of choice books, and was noted for his happy faculty of communicating his great stores of knowledge. Few men have possessed equal capacity, and even during the worst part of his career his charitable deeds were hardly less remarkable than his iniquities. He described his early life in 2 autobiographical volumes, written with great naturalness and force.

BURROWS, STEPHEN, an English navigator of the 16th century. He accompanied Chan-

cellor, as second in command, in his voyage to discover a north-east passage in 1558. Three years later he had chief command of another expedition, equipped with the same object. He doubled Cape North, touched at Nova Zembla, discovered the island Waigatz, and reached lat. 70° 30' N., a higher point than had before been reached by any navigator. He then turned to the east, designing to explore the river Obi; but the ice, the length of the nights, and the severe cold, obliged him to give up his purpose. He returned to England, and published an account of his observations. He was the first who observed the gradual declination of the magnetic needle.

BURROWS, WILLIAM, a lieutenant in the U. S. navy, entered the service in Jan. 1800, and though a man of great eccentricity of character, was always distinguished for his gallantry and high bearing as an officer. On Sept. 14, 1813, while in command of the *Enterprise* brig of 14 18-pound carronades, he fell in with, and captured, off Portland, Me., H. B. M. brig *Boxer*, of 12 guns, after a most gallant action. An awkward circumstance occurred to the enemy on this occasion. After he had hailed to say that he had surrendered, he added that his colors could not be struck until the *Enterprise* ceased her fire, as they were "nailed aloft." Both commanders were killed in this action. The *Enterprise* took her prize into Portland, where these 2 gallant officers were buried side by side with the honors of war. Lieut. Burrows fell at the age of 30.

BURSCHENSCHAFTEN (from *Bursche*, a youth, a student), German students' secret associations, founded in 1815 by that portion of the students of Jena who had taken a part in the German war of independence. The object of the association was to regulate the social habits of the students, and to foster a spirit of nationality. Tübingen, Heidelberg, Halle, and Gießen followed the example in 1816-'17. The German war of independence, which had principally brought about this fermentation among the students, not having produced those political reforms which they had anticipated, the students or *Burschen* of Jena resolved to convoke a general *Burschenschaft*, the object of which should be to connect the scattered associations into one national band of brotherhood, by the annual election of a presiding committee. On Oct. 18, 1817, representatives of almost all German universities met accordingly at the Wartburg festival, and in Oct. 1818, the members of 14 universities again assembled, and adopted a constitution, to which all the universities gave their assent in April, 1819, with the exception of Göttingen, Landshut, and those of Austria. Among the members of the Jena *Burschenschaft* was the student Sand, who had taken a prominent part in the convocation of the students at the Wartburg. When the dramatist Kotzebue was assassinated by Sand, on account of his opposition to the *Burschenschaften*, the German princes became alarmed,

and on Sept. 20, 1819, a conference took place at Carlsbad, which decreed the suppression of the associations. The students, however, baffled the designs of the government. The only change which the interdiction wrought was to make the *Burschenschaften* meet in secret instead of in public as before, and the secrecy, far from hindering their object, only tended to forward it. In 1827 the original project of a German national *Burschenschaft* was taken up again, but internal dissensions defeated the success of the plan. Two parties formed themselves, the *Germanen*, who were practical politicians and determined reformers, and the *Arminen*, composed of more ideal patriots, who saw not so much good in violent political changes, as in the general development of national power by perfecting their own individual moral and mental nature. In 1827, at Bamberg, and in Sept. 1831, at Frankfurt, the 2 conflicting parties came together, and the *Arminen*, although in a numerical majority, succumbed to the more energetic *Germanen*. At a general meeting which took place at Tübingen, Dec. 25, 1832, a revolution was openly resolved upon, and the students were all invited to stand by the national German *Burschenschaft*, which had taken up its head-quarters at Frankfurt-on-the-Main. This declaration was followed by the revolutionary attempt at Frankfurt, in June, 1833, in which 1,867 students were implicated, and which led to the arrest of students all over Germany. Although the police measures for the suppression of the secret political societies have since been stringent, the *Burschenschaften* exist to this day, though under different names. During the revolution of 1848, the only students who became implicated, happened to be those of Vienna, who had never before joined the *Burschenschaften*.

BURSLEM, a parish and market town of Staffordshire, England. It is the principal town in the important district called "The Potteries," on the Birmingham and Liverpool railway, and contains a number of large factories, dwelling-houses, villas, churches, and several public buildings. Even in the 17th century it was the chief place in England for the production of earthenwares, at first of a rude and homely kind, but afterward brought to great perfection by Josiah Wedgewood, who was born at Burslem in 1730. Pop. in 1851, 15,984.

BURTON, ASA, an American divine, born at Preston, now Griswold, Conn., in 1752, died at Thetford, Vt., April 23, 1836. He graduated at Dartmouth college in 1777, and was ordained at Thetford in 1779 over a church of 16 members, to which during the more than half century of his pastorate there were admitted 490 members. In theology he maintained what was termed the taste scheme, in opposition to the exercise scheme of Emmons. He published a volume of essays, and several sermons and discourses.

BURTON, JOHN HILL, a Scottish author, born in 1807, assisted Dr. (now Sir John) Bowring

in preparing the collective edition of Jeremy Bentham's works, particularly supplying the "Introduction." He subsequently published the "Life and Correspondence of David Hume;" "Letters addressed to David Hume by Eminent Persons;" "Political and Social Economy;" "Narratives from Criminal Trials in Scotland;" "History of Scotland, from the Revolution to the Extinction of the Jacobite Insurrection," (1688 to 1748), &c. In 1854 he was appointed secretary to the prison board of Scotland.

BURTON, ROBERT, an English divine and author, born at Lindley, in Leicestershire, Feb. 8, 1576, died in Oxford, Jan. 25, 1640, about the same which, having cast his own nativity, he had himself predicted. His family were ancient and wealthy. In 1593 he went to the university of Oxford, and was elected student of Christchurch in 1596. Anthony Wood stated that "for form's sake, though he wanted not a tutor," he was put under the tuition of Dr. Bancroft. Having taken orders, he obtained a college living, and in 1628 was presented by Lord Berkeley to the rectory of Segrave in Leicestershire. He composed the "Anatomy of Melancholy" in order, it is said, to distract his own mind from mournful reflections. This book went through 5 editions in its author's lifetime, and has repeatedly been reprinted since. Sterne seems to have used it almost as a commonplace book. Archbishop Herring describes it as "the pleasantest, the most learned, and the most full of sterling sense" among books, adding that the wits of the reigns of Anne and the first George were deeply indebted to it. Dr. Johnson said it was the only book that ever took him out of bed two hours sooner than he wished to rise. Warton, Ferriar, and Steevens strongly eulogized it. Byron said, it "is the most amusing and instructive medley of quotations and classical anecdotes I ever perused." If the reader has patience to go through his volumes, he will be more improved for literary conversation than by the perusal of any twenty other works with which I am acquainted." This curious and recondite book was published in 1621. Mr. Burton left his books to be divided between the Bodleian and the Christchurch library. The collection, which was large, is said to have comprised every book, no matter what the subject, published in his time. He also left £100 to each library to purchase books. He was addicted to astrology.

BURTON, WILLIAM EVANS, an English comedian and author, resident in America since 1834, born in London, in 1804. Intended for the church, he received a classical education, but at the age of 18 assumed the direction of his father's printing office, and edited a monthly magazine. His success as an amateur performer led him to become an actor, and after several years of experience in the Norwich circuit, he appeared with success at the Haymarket in 1832. He wrote several dramatic pieces, one of which, "Ellen Warham," was played at 5

theatres in London on the same evening. Since coming to America he has been the lessee of theatres in the chief Atlantic cities, but has resided principally in Philadelphia and New York. In Philadelphia he erected, at his own cost, the national theatre, and started in 1837 the "Gentleman's Magazine." He was proprietor of the opera-house in New York, when it was burned in 1841. In 1847 he purchased Palmo's opera-house in Chambers street, where he managed dramatic performances with popular favor for nearly 10 years. In 1856 he purchased the Metropolitan theatre on Broadway, to which his name is now attached. As an actor he excels in a wide range of eccentric and comic parts. The comedy of the "Serious Family," in which he impersonates the character of Aminadab Sleek, after having been played nightly for one whole season, is often revived by him. Of many of the humorous characters in Shakespeare he has made felicitous delineations, and he possesses a very full Shakespearian library. He edited for several years the "Literary Souvenir," and compiled in 1858 a "Cyclopædia of Wit and Humor," 2 vols. royal 8vo.

BURTON-UPON-TRENT, a market town of Staffordshire, Eng., 22 miles E. of Stafford, in a parish of its own name, which lies partly in Staffordshire and partly in Derbyshire. Pop. in 1851, 7,984. It is situated in a pleasant vale on the left bank of the Trent, which is navigable to this point by barges, and is here crossed by a freestone bridge of 86 arches, supposed to have been built about the time of the conquest, and remarkable as one of the longest structures of the kind in England, being 1,545 feet in length. The streets are well paved, and lighted with gas. Good water is abundant. There are 8 handsome churches, chapels belonging to various dissenting congregations, a free grammar school for boys, founded by the abbot of Burton in 1520, and enjoying from endowment an income of about £400 per annum, several other schools, a library and news-room, almshouses, a union workhouse, a dispensary, and a savings bank. Burton was formerly noted for alabaster works, but its chief production now is the excellent ale to which it gives its name, and which is consumed in large quantities in Europe, in America, and even in Asia. The other branches of industry are malting, tanning, rope making, iron forging, and the manufacture of cotton and hats. There are fairs 6 times a year, and a weekly market on Thursday. The Birmingham and Derby junction railway has a station half a mile W. of the town, and a branch of the Grand Trunk (or Trent and Mersey) canal joins the Trent about 1 mile below.—The abbey of Burton, some remains of which are yet visible, was founded about 1002 by an earl of Mercia, and subsequently received charters and privileges from the crown. Some of the abbots sat in parliament. Henry VIII., on the suppression of the monasteries, granted part of the possessions of this abbey, including the town and

several hamlets, to an ancestor of the marquis of Anglesey, the present lord of the manor, who thence derives the right of appointing a high steward, deputy steward, and bailiff, for the government of the town. The bailiff acts as justice of the peace, head of police, and coroner, and has the general regulation of the town, except as to paving and lighting, which are managed by a board of commissioners. During the contest between Edward II. and his barons, in 1322, the insurgents, led by the earl of Lancaster, took possession of this place, and for 8 days defended the bridge against the royalists. The latter finally crossed by a ford, and Lancaster, having set fire to the town (March 10), retreated into Yorkshire.

**BURTSCHIED**, or **BORGETTE**, a town of Rhenish Prussia, is almost a continuation of the city of Aix la Chapelle. It has 6,050 inhabitants, and contains several manufactories, beside some celebrated sulphur springs and baths, whose temperature is from 106° to 155° F.

**BURWHA**, a negro town in the kingdom of Bornoo, central Africa. It is situated on Lake Tchad, and covers an extent equal to 3 sq. m. Being defended by a wall 13 or 14 feet high, and surrounded by a dry ditch, it may be considered, with reference to the military practices of that country, a place of some strength. Pop. 5,000 or 6,000.

**BURY**, a parish, parliamentary borough, and manufacturing town of England, county of Lancaster, between the Roche and the Irwell, 198 miles N. W. of London, by the north-western railway, and 8 miles N. W. of Manchester, with which city it communicates by railway and canal. Pop. of borough in 1851, 81,262. It is an ancient town, but its importance, as well as its neat appearance, is of modern date. Since 1846 the streets have been paved and widened, gas and water introduced, sewers constructed, and many handsome buildings erected. The principal edifices are the parish church, with a beautiful tower and spire, 3 other churches, several chapels, 8 newsrooms, a mechanics' institution, 3 libraries, a model barrack, and a savings bank. There are many excellent schools, including a free grammar-school, founded by the Rev. Roger Kay in 1776, and having an income from endowment of £430 per annum. It has 2 exhibitions of from £30 to £35 each, to the colleges of St. John's, Cambridge, and Brazen-nose, Oxford. The manufacture of woollen was a prominent branch of industry here in the reign of Edward III., but has now given way in great degree to that of cotton, which is extensively prosecuted in all its branches. Several important improvements in the manufacture originated here, and among others that of employing various colors in weaving one piece of cloth. The first Sir Robert Peel established his extensive print works on the Irwell, near this town; and at his residence, Chamber hall, in the immediate vicinity, his son, the celebrated statesman, was born. Bury

also contains several bleaching and dyeing establishments, paper mills, logwood-grinding mills, and iron foundries. It is governed by the county magistrates, who hold petty sessions twice a week. The Liverpool, Bolton, Wigan, and Bury, and the East Lancashire railways, pass through it. There are extensive coal mines in the vicinity.

**BURY**, **HENRI BLAZE**, baron de, a French author and critic, born at Avignon, May 19, 1818. He made his first literary venture with a poem entitled *Le souper chez le commandeur*, published in 1839 in the *Revue des deux mondes*. To that periodical he contributed for many years upon political and social questions. He wrote for it also many poems and critical essays upon Germany and its literature, some of them under the pseudonym of Hans Werner. He published a complete translation of Faust in 1844, which has passed through numerous editions. He soon after published an essay, entitled *Ecrivains et poètes d'Allemagne*. He resided for several years in Germany, and was intimate in the famous literary society of Weimar. He afterward travelled in Italy, and in 1850 published a political essay, *Sur Vénise et l'Italie pendant les campagnes de Radetzky*; and he was the first to suggest a union of the 2 branches of the house of Bourbon.—His wife, **MARIE PAULINE ROSE STUART**, of an ancient Scotch family, was educated in France, and has written many tales and critical essays both in English and French. Among these are the *Essai sur Lord Byron*, and the novels "Mildred Vernon," and "Falkenberg."

**BURY ST. EDMUND'S**, a parliamentary and municipal borough and market town of England, in the county of Suffolk, on the Lark, 26 miles N. W. of Ipswich, and 94 miles N. E. of London by railway, and 72 miles by road. Pop. in 1851, 18,900. It is well built, supplied with gas and water, and has clean, paved, and regular streets. It comprises 2 wards, is governed by a mayor, 6 aldermen, and 18 councillors, and is the seat of the county assizes, general, quarter, and petty sessions, and other courts. Its public buildings and institutions are numerous and interesting. It has 3 handsome churches, one of which, built about 1430, and remarkable for its beautiful carved roof, contains a marble slab erected to the memory of Mary, queen of France, and afterward duchess of Suffolk, daughter of Henry VII. of England. Another of the churches has a belfry 80 feet high, which was originally a grand portal to the churchyard, and is regarded as one of the finest specimens of its class of ancient Norman architecture in existence. The Roman Catholics, and various dissenting denominations, have chapels. Schools are numerous, and some of them of high repute. Among the latter are a free grammar-school, founded by Edward VI., and having an income from endowment of more than £600 a year, a commercial school for 150 boys, national schools, &c. Of nearly 100 almshouses and similar institutions in Bury, the

most celebrated is Clopton's hospital for decayed housekeepers. A mechanics' institution, a library, shire-hall, guild-hall, theatre, concert and assembly rooms, the county gaol built on the panoptic principle, a house of correction, 2 hospitals, and a savings bank, are the other buildings of most note. Several fairs are held here during the year; the principal one, which is among the most important in England, commences in October and lasts 8 weeks—Bury St. Edmund's, or St. Edmund's Bury, as the old writers call it, is supposed to be the Roman *Villa Faustina*. Its name comes from St. Edmund, king and martyr, who received the manor from Beodric after the dissolution of the heptarchy, and was here crowned king of East Anglia in 856. After his death and canonization the Benedictines founded here an abbey under his protection, which in after ages became the most magnificent in the kingdom after that of Glas-tonbury. Its walls enclosed, beside the monastery proper, a large churchyard, the abbot's palace, infirmaries, towers, a chapter house, a garden, several chapels, 8 small churches, and the splendid abbey church, founded in 1065, and enriched with numerous ornaments from Caen in Normandy. The abbot, under whom were 80 monks, 16 chaplains, and 111 servants, enjoyed the most extensive privileges, even to the coining of money and infliction of capital punishment. Outside of the precincts of the abbey, but dependent on it, were numerous hospitals and other charitable foundations. On the dissolution of the monasteries this institution was valued by the commissioners at £2,366 16s., which was however much less than its real value. Almost the only relic left of its grandeur is the western of its 4 gates. Portions of the church remain, but are used as dwellings and shops. Parliaments were held here by Henry III. and several other kings.—The town is the birthplace of Sir Nicholas Bacon, Bishop Gardiner, and Bishop Blomfield of London. It gives the title of viscount to the Keppel family. The seat of the marquis of Bristol, the lord of the manor, is in the vicinity.

BUSAO, an uncivilized, independent tribe, inhabiting the northern part of the Sierra Madre mountains in the island of Luzon, who tattoo their faces, breasts, and arms, and wear ornaments of ivory, coral, and wood in their ears, like Polynesians. On account of this practice, which distinguishes them from all the other races, wild and civilized, of the Malay archipelago, Noceda and other Spanish writers have pronounced the Busaos and the Burikos, a neighboring kindred tribe, who also practise tattooing, to be descendants of Pacific islanders; either colonists, or driven by storm upon the shores of Luzon. Mr. Crawford, the English historian of the archipelago, considers this practice alone a slender foundation for such a supposition. However, a scrutiny of the principal languages of Luzon and of the Maori of New Zealand discloses considerable affinity between them. For instance, the Malay words *makan*,

to eat, and *awar* or *ayar*, water, are *kai*, *kau*, and *wai* in New Zealand and the Philippines; and more than a hundred other instances could be adduced, of this elision of the first syllable of Malayan words, used by Pacific and Philippine islanders.

BUSBEQUIUS, AUGUSTUS GISLENIUS (AUGIER GHISLEN DE BUSBEQ), a Flemish scholar and statesman, born at Communes, in Flanders, in 1522, died near Rouen, Oct. 28, 1592. He was employed on several important diplomatic missions, and officiated for many years as ambassador at Constantinople, until 1562, when he was recalled to take charge of the education of the sons of Emperor Maximilian II. In 1570 he accompanied the archduchess Elizabeth to France, on occasion of her marriage with Charles IX., and filled the functions of ambassador in Paris until 1592, when the political troubles in France compelled him to resort to flight. On his way to Flanders, he was attacked by a party of Leaguers, and although he received no personal injury, the shock was so great that he died before he could reach his destination. During his residence in Turkey, he made a collection of celebrated Greek inscriptions and manuscripts, which he afterward presented to the library at Vienna, and also employed an artist to make drawings of rare plants and animals. His most famous works are his description of his travels in Turkey, and his essay on the Ottoman empire. He was a scholar of great attainments, and a proficient in many languages.

BUSBY, RICHARD, an English schoolmaster, born at Lutton, in Northamptonshire, Sept. 22, 1606, died in London, April 6, 1695. He was educated at Westminster school and Oxford; entering the church, he was made prebendary rector of Cudworth, in Somersetshire, in 1639, and on Dec. 13, 1640, was appointed head master of Westminster, in which capacity he continued until his death, 55 years afterward. On the restoration of Charles II., he was made prebendary of Westminster, and canon residentiary of Wells. Dr. Busby is traditionally remembered as a severe disciplinarian in his school.

BÜSCH, JOHANN GEORG, a German author of many statistical and commercial works, born Jan. 8, 1728, died Aug. 5, 1800. He was a graduate of Göttingen, and from 1756 to the time of his death, he officiated as professor of mathematics at Hamburg. He founded in that city a commercial school, and promoted the establishment of a society of fine arts and industry, of which he was the first president. His complete works appeared at Zwickau in 1813-'16, in 16 vols.

BÜSCHING, ANTON FRIEDRICH, a German geographer, born at Stadthagen, in Schaumburg-Lippe, Sept. 27, 1724, died in Berlin, May 28, 1798. His first geographical work, a description of the duchies of Schleswig and Holstein, was published in 1752. In 1754 he was appointed professor of philosophy at the

university of Göttingen, and in 1760 pastor of the German Lutheran church at St. Petersburg. In 1765 he removed to Berlin. His most important work is his "Universal Geography," which made its first appearance in 1754. That part of it in which he describes the countries and nations of Europe, was translated into English, and published in London in 6 vols. 4to, in 1762.

**BUSEMBAUM, HERMANN**, a German Roman Catholic theologian, born at Nottelen, in Westphalia, in 1600, died in Münster, Jan. 31, 1668. He was a Jesuit, and in his *Medulla Theologiae Moralis* (which passed through 50 editions), he carried the doctrine of the temporal supremacy of the popes to such a height, that the secular tribunals in almost every European state were unanimous in pronouncing condemnation on his work, and committing it to the flames.

**BUSH**, in mechanics, the name given to the piece of hard metal, usually brass, fitted into a plumber-block, in which the journal turns. It is sometimes termed the pillow, and the blocks, pillow-blocks. The guide of a sliding-rod is also termed a bush.—Bushing a gun or cannon is inserting a small cylinder of refractory metal, as platinum, in the touch-hole.

**BUSH, GEORGE**, an American theological writer, born at Norwich, Vt., June 12, 1796. He graduated at Dartmouth college in 1818, studied at Princeton theological seminary, received ordination in the Presbyterian church, and was for 4 years a missionary in Indiana. He devoted himself especially to biblical learning, was elected in 1831 professor of Hebrew and oriental literature in the university of the city of New York, published in 1832 a "Life of Mohammed," and in 1833 an elaborate "Treatise on the Millennium," in which he regards the millennial age as the period during which Christianity triumphed over Roman paganism. About the same time he compiled from tourists, archaeologists, and commentators, a volume of "Scriptural Illustrations," published in 1835 a Hebrew grammar, and in 1840 began the issue of a series of learned and ingenious commentaries on the Old Testament. He edited in 1844 the "Hierophant," a monthly magazine, in which appeared striking articles from his pen on the nature of the prophetic symbols. In the same year he published his "Anastasis," in which he opposed that view of the resurrection which implies a physical reconstruction of the body. This work attracted much attention, and he answered the many attacks which were made upon it in a treatise entitled the "Resurrection of Christ." In 1845 he connected himself with the Swedenborgian church, translated from the Latin the diary of Swedenborg, and has since that time, in numerous addresses, and short treatises, and as editor of the "New Church Repository," labored to develop and maintain the principles of that philosopher. In 1847 he published a work on the higher phenomena of Mesmerism, which he deems a confirmation of the truths of Swedenborg's revelations.

Personally, Prof. Bush is distinguished for his simple manners, and the geniality and kindness of his disposition.

**BUSHEL**, an English measure of 8 gallons, divided into 4 pecks, used for dry materials, as grain, fruit, coal, &c. The gallon, which by act of parliament of Geo. IV., c. 74, § 7, is defined to determine its capacity, must contain 10 lbs. avoirdupois of distilled water, weighed in air, at the temperature of 62° F., the barometer being at 30 inches; or to contain 277.274 cubic inches. The so-called imperial bushel, then, must contain 2,218.192 cubic inches. But if the goods measured are of a kind usually heaped, as potatoes, coal, &c., it was prescribed, that the capacity, including the raised cone, should be 2,815 cubic inches. This rule was abolished by act of parliament of William IV. The Winchester bushel was the standard before the imperial from the time of Henry VII (act of 1697). Its capacity was 2,150.42 cubic inches; its dimensions 18½ inches internal diameter, and depth 8 inches. Heaped, the cone was to be not less than 6 inches high, making with a true cone its contents, 2,747.70 cubic inches.—The bushel of the state of New York contains 80 lbs. of pure water at its maximum density, or 2,211.84 cubic inches.

**BUSHIRE**, or **ABOO-SHEHR**, a seaport town of Persia, in the province of Fars, situated on the N. E. coast of the Persian gulf, at the northern extremity of a peninsula, to the north and east of which is the bay. The climate is extremely hot and unhealthy, producing various kinds of disease, especially of the eyes. In 1881 the plague made a fearful havoc among the population, which, from 20,000 in previous years, has dwindled down to 5,000 or 6,000 in 1858. Beside many huts of palmwood outside of the gates, there are about 400 white stone houses in the town, which present rather an agreeable appearance from a distance; and the badgirs, or ventilators, raised over the houses (chiefly for the comfort of the ladies), to the height of 100 feet, contribute to enhance this impression. The narrow streets, however, of which there are not less than about 800, are in a miserable condition. There are few handsome buildings in the town excepting the East India company's factory and the sheik's palace.—Bushire is the great commercial emporium of Persia. Its merchants carry on an extensive trade with East India, Russia, and Turkey, and supply almost all Persia with goods. The principal imports from India are indigo, sugars, and spices. The steel of India is preferred to that of other countries, and used for the manufacture of sabres. Tin is imported from Banca, and coffee chiefly from Mocha. Manufactured goods are imported from England and continental Europe, a British consular resident having long been maintained at Bushire, owing to the requirements of the increasing commercial intercourse. Many goods sent from Europe to India are thence exported to Bushire. The exports are raw silk, sheep's and goats' wool

horses, dried fruit, wine, grain, copper, turquoises, tobacco, yellow dye-berries, asafoetida and various sorts of drugs, rose water, gall-nuts, pearls, and other minor articles. The principal exports of manufactured articles are carpets, shawls, velvets, silk goods, and gold and silver brocades. Cotton is extensively produced, and chiefly retained for home consumption, although some of it is exported to Russia and other countries. The great route to the interior of Persia starts at Bushire, and is not only of great commercial, but also of great strategical importance. On the land side the town is fortified by a mud wall with round towers. In the late war between England and Persia, Bushire became the basis of military operations, and was captured, Dec. 2, 1856, at the very outset of the expedition.

**BUSHMAN'S RIVER** forms the boundary between the districts of Uitenage and Albany, Cape Colony, S. Africa. It empties into the Indian ocean.

**BUSHMEN.** See **BOSJESMANS.**

**BUSHNELL, DAVID**, an American inventor, born in Saybrook, Conn., about 1742, died in Georgia, 1836. He graduated at Yale college in 1775, and turned his thoughts toward the invention of a machine for blowing up vessels from under water. He exploded, successfully, many small models; made a large machine capable of conveying an operator with 150 lbs. of powder, which was tried in vain on the Eagle, a British 64-gun ship, lying in the harbor of New York. Bushnell prepared a number of machines in kegs to be floated by the tide upon the British vessels lying in the river at Philadelphia, the result of which attempt gave occasion to the ballad of the "Battle of the Kegs," by Francis Hopkinson. Bushnell became a captain in the army, and after the close of the war went to France. It was long supposed that he died in some of the troubles of that country, until, in 1826, it appeared that on his return from Europe he had settled in Georgia as a physician.

**BUSHNELL, HORACE**, an American theologian, born in 1802, at New Preston, a part of the town of Washington, Litchfield co., Conn. He was the son of Ensign Bushnell, a farmer; and when a boy was employed in a manufactory in his native place. He entered Yale college, and graduated in 1827, when he was for some time occupied as literary editor of the "Journal of Commerce" of New York, and afterward as teacher of the academy in Norwich, Conn. In 1829 he became a tutor in Yale, and occupied this post for 2 years, studying law and theology. In May, 1838, he accepted a call to become pastor of the North Congregational church in Hartford, Conn., and still fills that position. He received the degree of doctor of divinity from the Wesleyan university at Middletown, Conn., and afterward from Harvard university. His earliest production of much notoriety was a Phi Beta Kappa oration, delivered at New Haven, on the "Principles of National Greatness."

The first of his theological books was "Christian Nurture," published in 1847, and devoted to illustrating the author's views on the subject of religious education, the relations of the family as a Christian institution, and other "subjects adjacent thereto," including under this head the philosophy of revivals, and the defining their due limits, as a spiritual power. His next publication was "God in Christ," a collection of 8 discourses delivered by him before 8 different bodies; the *Concio ad Clerum*, a discourse on the divinity of Christ, at the annual commencement of Yale, Aug. 15, 1848; a discourse on the atonement, delivered before the divinity school in Harvard university, July 9, 1848; and a discourse on "Dogma and Spirit," before the Porter rhetorical society, at Andover, September, 1848. These 8 discourses, with a preliminary "Dissertation on Language, as related to Thought and Spirit," and a brief introduction, were published in 1849 in one volume, which attracted much attention and criticism from the apparent heresy of its views on the subject of the Trinity. Dr. Bushnell was brought before the association of Congregational ministers of which he was a member, and after much discussion and opposition was declared free from the specific charge of heretical opinion brought against him. The obnoxious book opens with a dissertation on the inefficacy of language to express thought, and its entire want of power to define or depict spirit, except in symbolic or analogical phrases. The discourses following, being an attempt to set forth the author's views on certain doctrinal points, conveyed ideas to most readers of a different nature from those intended by the writer, who published his defence in 1851, in a new volume entitled "Christ in Theology, being the Answer of the Author before the Hartford Central Association of Ministers, October, 1849, for the Doctrines of the Book entitled God in Christ," in which he analyzes the elements and formation of theological opinion, and reviewing the great multitude of so-called heresies that in every age have disturbed the unity of the Christian church by innumerable shades of differing belief, he arrives at the conclusion that systematic orthodoxy is not attainable, and that human language is incapable of expressing with any exactness theological science. Other writings of Dr. Bushnell are to be found in articles for religious periodicals, chiefly the "New Englander," to which he has contributed a review of the "Errors of the Times," and of a "Charge by Bishop Brownell, of Conn.," "The Evangelical Alliance," "Christian Comprehensiveness," "The Christian Trinity a Practical Truth," and an account of "California," from personal observation. Beside these, he has contributed to the literature of the day many philosophical and metaphysical essays delivered as addresses or sermons. Among these are a discourse on the moral tendencies and results of human history; an oration on work and play; a sermon entitled the "Day of Roads," another on unconscious influence, another en-



titled the "Northern Iron;" an address on religious music; one on "Politics the Law of God;" an oration on the fathers of New England; a historical discourse on the "Age of Homespun;" and a speech for Connecticut, delivered before the legislature.—Dr. Bushnell is a person of nervous temperament and sensitive organization. Rather a poet than a logician, his works are remarkable for graphic and dramatic expression, delicate and acute mental perception, beautiful analogies, and great metaphoric power, mingled with trenchant satire, exquisite pathos, and a vein of genuine practical sense that exists in cooperation with a brilliant imagination and sympathetic emotional traits, rendering him an eloquent preacher, and a man who attracts and retains personal regard in an uncommon degree; though the want of strict argumentative force and the overstrained use of analogy in his writings detract something from his reputation as a theologian and polemic.—During a year's absence in Europe, after visiting Rome, Dr. Bushnell wrote a letter to the pope, from London, April 2, 1846, which was published in the papers of the day, and in which he commends to the notice of his Holiness certain alleged defects in his spiritual and secular administration.

BUSKIN, a kind of boot-leg, covering the outer garment so as to protect the leg. The English men of letters use this word to translate the Latin *cothurnus*, or high-heeled shoe, which the ancient actors used on the stage to give them the appearance of height.

BUSS, FRANZ JOSEPH, a German statesman, born at Zell in 1803. He studied successively philology, medicine, and jurisprudence, and since 1836 has been professor of law and political economy at Freiburg. He first made himself known by translations from other languages. In 1837 he began to engage actively in politics, and was elected to the 2d chamber of Baden. At first an extreme liberal, he soon renounced democracy, and appeared as the champion of ultramontane ideas. In 1848 he was made a member of the German national assembly. To make the Catholic church entirely independent of the state is the object for which he has been and is yet unweariedly active.

BUSSERUT-GUNGE, a small town of Oude, British India, on the road from Cawnpore to Lucknow, fortified by a wall, a wet ditch, a tower commanding the gateway, and various other works. It was the scene of 3 brilliant but indecisive victories over the sepoys, gained by Gen. Havelock and a handful of British, while endeavoring to relieve Lucknow, July 29, Aug. 5, and Aug. 11, 1857.

BUSSEY, BENJAMIN, a merchant of Boston, born in Canton, Mass., March, 1, 1757, died in Roxbury, Jan. 18, 1842. He was a soldier in the revolutionary war, became a silversmith in Dedham, afterward a merchant in Boston, where he acquired a large property, which he bequeathed, with a beautiful estate at Jamaica Plain, after the decease of certain relatives, to

Harvard college, for the establishment of an agricultural school, and the support of the law and divinity schools of that college.

BUST, in sculpture, the figure of a human being truncated below the breast. The etymology of the word is not satisfactorily explained, but it is of Latin origin. The bust includes the head, shoulders, breast, and arms truncated just below the shoulders. It generally stands on a pedestal. Among the ancients the bust of a person was taken, when now his portrait would be painted or his daguerreotype made.

BUSTAMENTE, ANASTASIO, a president of Mexico, born in Guadalajara, in 1782, died at San Miguel de Allende, in 1851. At the age of 21 he received a diploma as doctor of medicine, began practice in San Luis Potosi, and soon after became family physician to Gen. Calleja, viceroy of Mexico. When the revolution of 1810 broke out, he abandoned a lucrative practice to enter on a military career as lieutenant of a regiment organized by Calleja, called the "faithful lancers of Potosi." He fought in behalf of the Spanish government against the Mexican leaders, Hidalgo, Allende, Aldama, and Abasolo, and participated in the disastrous battle of Calderon; but, disgusted at length with the cruelties of Calleja and his associates, he joined the patriots and served in the republican ranks. When, Feb. 24, 1821, Iturbide pronounced against the Spanish government, Bustamante was one of the first to sustain him, and to urge the plan of independence proposed by him. Iturbide promoted him from colonel of the regular line to the rank of general of division, and appointed him commandant general of the interior provinces, which office he held, participating in nearly all the public affairs of the state, till he was called to the vice-presidency of the republic, Dec. 31, 1829. He took part against the president Guerrero, and in Dec. 1830, Santa Anna having headed a revolution called the "plan of Jalapa," he was charged with the executive power which he retained till Aug. 14, 1832. For the success of his government he was much indebted to his minister, Don Lucas Alaman. Being succeeded in the presidency by Pedraza, he took command of the army, and was soon after overthrown by Santa Anna, and by him banished. He visited France, where he attracted much attention, and is said to have pursued his medical studies. Upon the outbreak of the Texan revolution in 1836 he returned to Mexico, and in 1837 was again elected to the presidency, which he held, excepting a short interval in 1839, till 1841, when he was again overthrown and banished by Santa Anna under the "plan of Jalisco." He fled to Europe, and resided for some time in Genoa, but upon the fall of Santa Anna in 1845, again returned to Mexico, and gave his services to his country in many offices till his death. Bustamante was one of the most honorable of the public men of Mexico, and the republic was prosperous under his administration.

BUSTARD (*otis*), a large fowl, peculiar to the dry, grassy plains of Europe, Asia, and Africa. They have not been observed either on the American or Australian continents. They were formerly abundant in Great Britain, on the large open wolds of Wiltshire, Dorsetshire, and of some parts of Scotland, where it is said that they were coursed with greyhounds, which is by no means impossible, as they cannot take wing easily or without considerable preparation, and when hard pressed on a sudden have the habit of running with their wings outspread like sails to assist them, after the manner of ostriches, with which they have several points in common. There are 2 European species of this bird, which appears to form a connecting link between the gallinaceous tribes and the ostrich and cassowary. The great bustard (*O. tarda*), so called from his heaviness on the wing, for he is a fleet runner, stands nearly 4 feet high, and weighs from 25 to 30 pounds. The head and neck in the male are ash-colored, and on each side of the neck he has a tuft of feathers nearly 9 inches long, springing from the base of the bill, and somewhat resembling those of the American plumed grouse. Like them, also, they overlie 2 naked spots of skin, which in the bustard is of a violet color. The upper parts of the bird are beautifully variegated with black and rust color on a pale reddish ground. The belly and sides are white. The legs are long, naked above the knee, dusky in hue, and have no hind toe, but a callous prominence serving as a heel. The male bird has a water-sac in the fore part of the neck, having its entrance under the tongue, capable of containing 2 quarts of water. It is said, but probably falsely, that the bustard ejects the contents of this sac as a means of defence against birds of prey. But there is no bird of prey smaller than the golden eagle capable of assailing a fowl of such size, and a spirit of water would hardly check his attack. The female is much smaller than the male, and less brightly colored; her neck and head are brown, and she has not the curious water-sac.—The other species, the little bustard (*O. tetrax*) is only 17 inches in length. It generally resembles the larger species in form and color, but its head is reddish brown, while the neck of the male is black, with a narrow white border above and below. The upper parts are mottled with the same colors, but with finer and more delicate lines. This species is very common in France, where it is a shy, cunning, and wary bird, frequenting the barren heaths of Brittany and those singular tracts known as the *landes*. The flesh of the bustards, of both species, is excellent—superior, it is said, to that of the turkey; and it is singular that no attempt seems to have been made to domesticate them. They are mentioned by Xenophon in his "Anabasis," as abundant on the sage plains of Mesopotamia, and are regular autumnal visitors of northern Greece, where they are confounded with the wild turkey.—There are 8 other rare

species of bustards recently discovered. The black-headed bustard (*O. nigricaps*), an Asiatic species, inhabiting the highlands of the Himalayas, and also the open Mahratta country, where it lives in large flocks, and is regarded as one of the greatest delicacies as an article of food. It is nearly 70 inches in length, and its colors, above, are pale bay undulated with rufous brown. Its head, as its name indicates, is black; its neck, belly, and under parts white, with the exception of a black patch on the breast. The *O. carulescens* of Africa, was discovered by Le Vaillant in the interior of the Caffre country, in south Africa, and in some parts of the colony of the Cape of Good Hope. It appears to have no name in the vernacular; and why it should be called *carulescens* is not easily to be understood, since its coloring, like that of the other species, its congeners, is reddish brown above, with the under parts of a pale bluish gray. The kori bustard, discovered by Burchell on the banks of the Orange river, is nearly 6 feet in height, and but 7 in extent from wing to wing, while its plumage is said to be so thick as to be proof against any thing short of a rifle ball. Little is known of its character or habits.—The *O. Denhami*, discovered by Major Denham in central Africa, is another large species, not less than 8 feet 9 inches in height. It is found in the grassy districts immediately to the south of the great desert, in the regions of Lake Tchad and the Damhara country. It is not numerous, and is always found in company with gazelles; like which, it is so famous for the brilliancy of its eyes, that the Arabs, when they wish to describe their most beautiful women, are wont to liken their eyes to those of the *oubara*, which is the general name for all the African bustards.

BUSUAGAN, an island of the Philippine archipelago, the largest of the group called Calamianes, and inhabited by the Bisaya race. Area, 450 sq. m.; pop. 4,500. The geological formation of the island is volcanic, and the soil is equal in fertility to some of the most productive islands of the group, and yet it is poor and sparsely peopled. It is said that its non-productiveness is owing to the extraordinary quantities of wild hogs, porcupines, squirrels, and rats, which destroy all the fruits of agricultural labor.

BUTCHER-BIRD, a name applied to the great shrike, belonging to the order *passeres*, tribe *dentirostres*, and family *lantida*. The best-known genus of the family is *lantus*, Linn., characterized by a moderately long and strong bill, with the culmen curved and tip hooked and emarginate; tarsus short and strong; toes long and robust, the outer the largest; hind toe long and broadly padded; claws curved and sharp. There are more than 80 species described in America, Europe, Asia, and Africa, of which the butcher-bird (*L. septentrionalis*, Gmel.), or great American shrike, is a celebrated one. The length of this bird is 10½ inches, the extent of wings 14, of the bill along the back 4

of an inch. The plumage is soft and blended; long bristles at the base of the bill; wings of ordinary length, 4th quill the largest; tail long, straight, graduated, of 12 rounded feathers; loreal space, behind the eye, wings and tail, brownish black; iris hazel; upper parts light ash-gray, tinged with pale blue; a white streak over eye; lower parts grayish white, tinged with brown on the fore part of breast, and with faint, undulating, dusky bars; base of the primaries white, the secondaries and their coverts tipped with the same; in the female the head and hind neck are tinged with brown, and the lower part has more numerous bars. It is common in the middle and northern states for the greater part of the year, retiring northward to breed; according to Audubon, it is not found along the coast of the southern states, the *L. ludovicianus*, Linn., taking its place. The nest is built of dry grass, leaves, and moss, in the fork of a bush or low tree; the eggs are 5 or 6 in number, of a dull cinereous blue color, spotted and streaked at the larger end with yellowish brown; the time of incubation is 15 days. It frequents woody and bushy places, where it sits perched on a branch continually jerking its tail; its flight is undulating and rapid; it is most commonly seen single, or in pairs, and is wary and hard to approach. It feeds on insects, especially grasshoppers and crickets; but it also attacks and kills small birds, which it tears apart and swallows in large pieces; it pitches downward like a hawk, with closed wings, on the back of its victim, which it instantly strikes in the head, tearing open its skull. In confinement it eats eagerly pieces of fresh beef. It has the singular propensity of impaling insects and small birds on points of twigs and thorns, probably for convenience in devouring them, though in many instances this habit seems to be wanton cruelty, as the bird leaves them to decay. The Rev. Mr. Peabody remarks: "This practice of gathering what he does not want, and keeping it till it can be of no use to him, is regarded as an unaccountable mystery in a bird, while in man the same proceeding is considered natural and wise." It is so bold that it often enters apartments where pet birds are kept, and attempts to seize them from the cages; several have been caught in this manner. It imitates the notes of other birds in distress, and when they flock around to see what is the matter, it pounces into the midst, and rarely fails to secure one. It will pursue birds on the wing, and even small quadrupeds and lizards. Audubon is of opinion that this bird is the same as the *L. excubitor*, Linn., but more recent authorities consider them distinct. The European bird, or great cinereous shrike, is rare in England; it is sometimes trained in Russia for catching small birds, rats, and mice, which, like its American congener, it fixes to a thorn and tears to pieces with its bill; it possesses the same propensity for fixing its food in confinement, according to Selby; it is also called butcher-bird. The *L.*

*ludovicianus*, Linn., is a native of the southern states, being confined chiefly to Florida, Georgia, and the Carolinas. This is called the loggerhead shrike, and abounds on the rice plantations, where it does good service in destroying field-mice, large grubs, and insects, pouncing upon them like a hawk. In all the butcher-birds the legs and claws are weak, and are never used in tearing their prey; this is effected by their powerful bill, and in this they differ from the true birds of prey, which strike and tear with their talons.

BUTE, an island of Scotland, in the frith of Clyde, about 16 miles long, from 8 to 5 miles wide; area, 60 sq. m.; pop. 2,499. The surface in the northern parts is rugged and mountainous; the central and southern portions are undulating and tolerably fertile. The temperature is mild and equable, and the island is much resorted to by invalids. There are 3 small lakes, Fad, Ascog, and Quein. The town of Rothsay is pleasantly situated on the E. coast, and Mount Stuart; the seat of the marquis of Bute, the chief proprietor, is near it.

BUTE, JOHN STUART, earl of, born in Scotland in 1713, died in London, March 10, 1792. In his 10th year he succeeded to his father's title and estates. He was educated at Eton; and in Feb., 1787, he was elected one of the 16 representative peers of Scotland, and in the same year was appointed one of the lords commissioners of police in Scotland. In Aug. 1736, he married the only daughter of Lady Mary Wortley Montagu. In 1760 he was appointed lord of the bedchamber to Frederic, prince of Wales, eldest son of George II. On the death of his royal patron, in March, 1751, the widowed princess of Wales honored him with so much confidence and friendship, that (although Lord Bute lived happily with his wife, who had a large family) it was whispered that their friendship was far too close and intimate. He obtained a great influence, also, over the youthful prince of Wales, who, when elevated to the throne, in 1760, as George III., distinguished him particularly as his favorite, admitting him to the privy council, appointing him groom of the stole, and from that time consulting him on all the principal affairs of state. In March, 1761, Lord Bute was made one of the secretaries of state. His wife was created a British peeress in her own right, as Baroness Mount Stuart. In the following October, William Pitt (the elder), finding his powers, as nominal head of the administration, weakened by the vast influence of the new secretary, retired from the cabinet; and in May, 1762, when the duke of Newcastle also resigned, Lord Bute succeeded him as prime minister. With considerable ambition and inconsiderable abilities Lord Bute was now in an office for which he was ill adapted. Unpopularity gathered around his head. The attack was pointed by John Wilkes and Churchill, the poet, who assailed him because he was a Scotchman, and thereby only embodied the ruling idea among the peo

ple. England was then involved in what is called the 7 years' war. Lord Bute made peace, but was accused, in conjunction with the princess dowager, of having been bribed to grant too favorable terms to the enemy; and even Lord Camden, many years later, stated his conviction of the truth of the charge, as Bute's patrimonial estate was worth only £1,500 a year, and he was only life-tenant of Wortley, though he sank £300,000 in land and houses. "Junius" also intimates corruption, but with supporting his charges by evidence. At last, on April 7, 1763, within 5 days after he had been bitterly attacked by name, in Wilkes's "North Briton," the resignation of Lord Bute suddenly took place. He had been premier for little more than 10 months. Retaining his influence over the king, he nominated his immediate successors; but there soon followed a cessation of all intercourse with his majesty. From 1765 they never met; but, for a long time after, his influence was supposed to continue, and was complained of by men in office. Lord Bute went back into private life (his son was placed on the British peerage, in 1776, as Baron Cardiff), passing his time between Scotland and England, with an occasional visit to the continent. The closing years of his life were spent in a villa on the coast in Hampshire. He had some literary tastes, and while in power gave a good sinecure to Home, the author of "Douglas;" he manifested some interest in the welfare of the younger Bentley; he granted a pension of £300 per annum to Dr. Johnson; he proposed that the antiquarian society should execute a history of British antiquities; and he published, at his own expense (£10,000), 9 quarto volumes, delineating English botany, and after 12 copies were worked off, destroyed the plates.—Bute's eldest son was created a British marquis in 1796. Lady Louisa Stuart, 6th daughter and 11th child of Lord Bute, survived until Aug. 1851 (aged 94), and contributed some interesting introductory anecdotes to Lord Wharnccliffe's edition of Lady Mary Wortley Montagu's works. One of his grandsons was created Baron Wharnccliffe in 1836; and another was created Baron Stuart de Rothsay in 1828.

BUTENIEFF, APOLLINARIS, a Russian statesman of the present day, entered the diplomatic career at an early age, and having served in various subordinate capacities in the department of Asiatic affairs, was appointed secretary and councillor of legation at various courts, and finally in 1830 became ambassador in Constantinople. In concert with Orloff and Brunnow he took a prominent part in the negotiations of 1833, and ingratiating himself, by his skilful management of affairs, with the divan, proved a formidable antagonist to the representatives of the Austrian and British governments. The state of his health making a quieter sphere of action desirable for him, he was transferred to Rome in 1843. Here, however, he was less successful in settling the misunderstandings between the holy see and St. Peters-

burg. In 1847 he assisted Count Bludoff in bringing about the concordat. After the conclusion of the treaty of Paris he was sent again to Constantinople, and accredited there as ambassador Aug. 25, 1856. Butenieff is a shrewd diplomatist, and at the same time a well-disposed and benevolent man, and a Russian to the core. He is singularly familiar with Turkish affairs.

BUTERA, GIORGIO, prince, a fortunate German, son of the Rev. Mr. Wilding, a Hanoverian clergyman (according to other accounts the family name was Schwinge), born about 1790, died in Wiesbaden in 1841. He took service in the English-German legion, and had attained the rank of lieutenant in 1810, when on his arrival in Sicily he was seized with illness. Great attention was shown to him by the family of the prince of Butera, whose daughter fell in love with him, and he finally married her, inheriting his father-in-law's title and estate, and receiving in 1832 the appointment of Neapolitan ambassador in Paris, and afterward in St. Petersburg.

BUTESHIRE, a county of Scotland, consisting of the islands of Bute, Arran, Inchmarnock, and the Cumbrays, in the frith of Clyde; pop. 16,608. The constituency of the county in 1853 was 483, and 1 member is returned to parliament. The inhabitants of these islands are principally engaged in agriculture and fishing; there are some quarries and coal mines. Rothesay, the county town of Bute, is a watering place.

BUTLER. I. A western county of Pennsylvania, bordered by the Alleghany river, and having an area of 800 sq. m. The surface is moderately uneven and the soil sandy, but not remarkably productive. It yields, however, fair crops of corn, rye, wheat, and oats, beside affording pasturage for sheep and cattle. Silk is produced to some extent. Bituminous coal, iron, and limestone are abundant. The productions in 1850 were 231,595 bushels of wheat, 237,339 of Indian corn, 585,684 of oats, 31,695 tons of hay, and 699,764 pounds of butter. There were 8 woollen factories, 1 cotton factory, 26 corn and flour mills, 10 saw mills, 14 tanneries, 2 breweries, 5 iron furnaces, 4 foundries, 3 potteries, various other manufactories, 62 churches, 3 newspaper offices, and 7,000 pupils attending public schools. Organized in 1800, and named in honor of General Richard Butler, an officer of the revolution. Pop. in 1850, 30,346; capital, Butler. II. A southern county of Alabama, drained by Sepulga river, and having an area of 875 sq. m. The surface is hilly and in great part covered with pine woods. The quality of the soil is fair. Cotton, corn, and sweet potatoes are the chief staples. The productions in 1850 were 4,094 bales of cotton, 305,272 bushels of Indian corn, 84,890 of sweet potatoes, and 30,930 pounds of rice. There were 28 corn and flour mills, 8 saw mills, 1 newspaper office, 3 churches, and 235 pupils attending schools and academies. Pop. in 1850, 10,836, of whom 3,639 were slaves. Capital, Greenville. The county is traversed by the proposed route of the

**Mobile and Girard railroad.** III. A southwestern county of Kentucky, intersected by Green river, which is here navigable by steamboats, and having an area of 500 sq. m. The face of the county is uneven and the soil moderately fertile. Cultivation is bestowed principally upon corn, oats, and tobacco. Live stock is also reared. The productions in 1850 were 289,774 bushels of Indian corn, 40,840 of oats, and 207,819 pounds of tobacco. There were 9 corn and flour mills, 1 saw mill, 18 churches, and 818 pupils attending public schools. Value of real estate in 1855, \$611,539. Pop. in 1850, 5,755, of whom 681 were slaves. Capital, Morgantown. IV. A southwestern county of Ohio, bordering on Indiana, and having an area of 455 sq. m. It is generally level, fertile, and remarkably productive. The crop of Indian corn in 1850 exceeded that of any other county in the state except Ross; there were 2,737,734 bushels raised, beside 291,782 of wheat, 844,517 of oats, and 10,494 tons of hay. An excellent species of limestone for building purposes underlies the county. Water-power is abundant, and the transportation of the agricultural products is greatly facilitated by the Miami canal and railroads from Cincinnati to Dayton, and Richmond, Indiana, which pass through the county. Pop. in 1850, 80,789. Capital, Hamilton. A number of interesting monuments of the aboriginal inhabitants have been discovered in this county, chiefly on the banks of the Great and Little Miami rivers. Some of them are works of defence consisting of earthen ramparts from 4 to 9 feet high, thrown around the brows of hills, enclosing from 16 to 95 acres of ground, and entered by gateways protected by intricately arranged embankments; others appear to be traces of sacred enclosures, and of others it is difficult to conjecture the design. They have been fully described by Messrs. Squier and Davis in their "Monuments of the Mississippi Valley." V. A south-eastern county of Missouri, bordering on Arkansas, and having an area of 560 sq. m. The surface is level or moderately hilly, and the soil suited to the growth of Indian corn, wheat, and oats, which together with cattle form the staples. The productions in 1850 were 2,387 bushels of wheat, 55,800 of Indian corn, 3,058 of oats, and 1,558 pounds of wool. There were 4 churches, and 91 pupils attending public schools. The county was named in honor of William O. Butler, of Kentucky. Pop. in 1856, 2,152, of whom 48 were slaves. In 1850 there were 53 slaves, and 1,563 free inhabitants. VI. A newly erected north-eastern county of Iowa, consisting mainly of uncultivated prairie land, drained by several branches of Red Cedar river; area, 576 sq. m. In 1856 it produced 723 tons of hay, 5,409 bushels of wheat, 6,906 of oats, 58,605 of Indian corn, and 7,711 of potatoes. Capital, Clarks-ville. Pop. in 1856, 2,141.

**BUTLER, ALBAN**, an English Catholic biographer, born at Appletree, Northampton-

shire, in 1710, died at St. Omer, in France, in 1773. Having become a clergyman of the Catholic church, he was chaplain for some time to the duke of Norfolk. He subsequently became president of the college of St. Omer, in France. He wrote several works, of which the best known is the "Lives of the Fathers, Martyrs, and other principal Saints." This has been translated into many modern languages.

**BUTLER, ANDREW PICKENS**, U. S. senator from South Carolina, 5th son of Gen. William Butler, born in Edgefield district, S. C., Nov. 17, 1796, died near Edgefield court-house, May 25, 1857. He graduated at South Carolina college in 1817, and was admitted to the bar in 1819. As a lawyer he practised in the circuit courts of Edgefield, Barnwell, Orangeburg, Lexington, and Newberry, and here laid the foundation of his reputation, not simply as a sound lawyer and eloquent pleader, but for good sense, political foresight, and a lively, companionable humor. In 1824 he was elected to the legislature as the representative of his native district. In 1827 he was one of the committee in the legislature who prepared the articles of impeachment and conducted the prosecution against Judge James, a veteran of the revolution, charged with incompetence and drunkenness. In 1829 he married Susan Ann, daughter of Col. Eldred Simkins, of Edgefield; but she died prematurely, only a few months after marriage. In 1831, a period marked by the apprehended collision of South Carolina with the federal government, on the nullification issue, he was elected colonel of a regiment of cavalry. In 1833, still a member of the legislature, he was made a judge of the courts of general sessions and common pleas. Subsequently, when a change was made in the judiciary system, he was transferred to the supreme bench of the state, where he continued until 1846, when he was elected a senator in congress. Soon after taking his seat in this body, he was appointed chairman of the judiciary committee. One of his earliest speeches was against making Col. Benton lieutenant-general of the army. He made 2 others upon a call for supplies to support the war against Mexico. His report upon the fugitive slave law was maintained by an elaborate effort upon the floor. His speech upon the Pacific railroad has been preserved in pamphlet form. By request he defended President Pierce's veto of Miss Dix's bill, appropriating public lands for a lunatic asylum. The Kansas question, the action of the naval retiring board, the abolition question, and all others affecting the peculiar interests of South Carolina, and the general welfare of the south, engaged him in frequent debate, in which he always took a conspicuous part. His last speech was in reply to Mr. Sumner, and in defence of South Carolina. His speeches and reports well merit the examination of the student who seeks to understand the pregnant period of our political history between 1846 and 1857. Judge Butler, himself, lived mostly a public life during all this period. He had su

vived nearly all his numerous kindred, 6 brothers and a sister. In 1832 he had married Harriet, daughter of William Edward Hayne, and in a short time he was again a widower, with a single living child. This domestic desolation, and the incessant strifes of public life, contributed to enfeeble an otherwise vigorous frame and elastic temperament, and hastened his death.

BUTLER, CHARLES, a Catholic historian and juriconsult, born in London, Aug. 15, 1750, died there, June 2, 1832. He was son of a linen draper in Pall Mall, and nephew of the Rev Alban Butler, author of "Lives of the Saints." He was called to the bar in 1791, and was the first Roman Catholic who was admitted, after the passing of the relief bill of that year. He wrote various pamphlets and other productions which attracted little notice; after which he produced *Horsæ Biblicæ*, giving a history of the original text, early versions, and printed editions of the Old and New Testaments, and also of the Koran, the Zend-Avesta, and the Edda. This first appeared in 1797, and ran through 5 editions and a French translation. This was followed by *Horsæ Juridicæ Subsecivæ*, a connected series of notes respecting the geography, chronology, and literary history of the principal codes and original documents of the Grecian, Roman, feudal, and canon law. He continued and completed Hargrave's "Coke upon Littleton." He supervised the 6th edition of Fearn's "Essay on Contingent Remainders," and contributed to Seward's "Anecdotes" an interesting "Essay on the Character of Lord Mansfield's Forensic Eloquence." He wrote a history of the geographical and political revolutions of Germany, and a "Historical and Literary Account of the Formularies, Confessions of Faith, or Symbolic Books of Roman Catholic, Greek, and Principal Protestant Churches." During his last 25 years Mr. Butler principally devoted his pen to the vindication of the Catholic church. He wrote numerous biographies of eminent Catholic divines and authors; he continued his uncle's "Lives of the Saints," and produced "Historical Memoirs of the English, Irish, and Scottish Catholics." When Southey's ultra-Protestant "Book of the Church" appeared, it was replied to in Butler's "Book of the Roman Catholic Church," which gave rise to 6 answers on the Protestant side, 2 of which (by Dr. Blomfield, bishop of London, and the Rev. George Townsend) were responded to by Mr. Butler. In 1822 was published the first volume of Mr. Butler's "Reminiscences," an autobiography. The second volume appeared in 1827. As a constitutional lawyer his reputation was very high.

BUTLER, CYRUS, a merchant of Providence, R. I., born in 1767, died at Providence, Aug. 22, 1849. He was the son of Samuel Butler, originally a common shoemaker, who removed from Edgartown in Massachusetts to Providence about the year 1750. Establishing himself in trade, he reached a high

degree of prosperity, which was shared by his sons Cyrus and Samuel, who were, however, brought up in habits of the strictest economy, and disciplined on the shoemaker's bench to the use of the awl and lapstone. The business was conducted in the name of Samuel Butler and Sons, and on the death of the father passed into the hands of the sons. Samuel Butler, jr., had but 2 children, a son and a daughter; the former survived his father but a few years; the latter became the wife of Alexander Duncan, and her uncle Cyrus having lived and died a bachelor, she inherited his great wealth, and that of her father and grandfather. Her uncle's estate was estimated at between \$3,000,000 and \$4,000,000. Several years before his death, at the instance of Miss Dix, so widely known for her philanthropic exertions, he gave \$40,000 to endow the Butler hospital for the insane in Providence.

BUTLER, JAMES, duke of Ormond. See ORMOND.

BUTLER, JAMES, a partisan officer of South Carolina during the revolution, born in Prince William co., Va., removed to South Carolina in or about the year 1772. He settled in what was then a frontier region of the country, and was soon called upon to take a part in Indian warfare. He was a good woodsman, and an excellent shot with the rifle. He was in what was called the "Snow Camp expedition," under Gen. Richardson,—an expedition involving the first struggles of the civil war in South Carolina with which the revolution began. Subsequently, he served under Gen. Williamson, in a similar expedition, in 1776. When Lincoln had taken the command of the continental forces of the South, Butler joined this general near Augusta in 1779. After the fall of Charleston, in 1780, and when the state was supposed to be completely in the power of the British, Lord Cornwallis issued a proclamation requiring the people to swear allegiance to the crown. Butler was one of those who refused. He was arrested, lodged in the gaol at Ninety-Six, was subsequently conveyed to the provost of Charleston, and then to the prison-ship. He was kept for 18 months in close confinement. When released, and on his return home, he was suddenly summoned forth to engage in an expedition against a foray of the Tories of his precinct, and was killed in the massacre which followed at Cloud's creek.

BUTLER, JOHN, a tory leader during the American revolution, born in Connecticut, left his native state before the outbreak of the war, and settled in the valley of Wyoming. Here, at the very beginning of the struggle, he organized a band of marauders and murderers, who were all painted and dressed like Indians, but who were in reality, for the most part, American traitors and vagabonds in disguise. At the head of these miscreants, he attacked and plundered the villages of that region, and slaughtered their inhabitants. The British government, on the conclusion of the war, generously granted But-

ler 5,000 acres of land in Canada, and a pension of £500 a year.

BUTLER, JOSEPH, an English theologian and moralist, born at Wantage, in Berkshire, May 18, 1692, died in Bath, June 16, 1752. He was educated in the Presbyterian communion, and early gave proofs of an extraordinary aptitude for abstruse speculation. In 1718 he addressed a series of letters to Dr. Clarke stating 2 objections to the reasoning in his "Demonstration of the Being and Attributes of God." The sagacity displayed by his correspondent was such that Dr. Clarke published the letters with his replies to them in the subsequent editions of his work. About this time Butler adopted Episcopal views, and with the reluctant permission of his father entered the university of Oxford in 1714, and was soon after admitted into holy orders. On the united recommendation of his college friend Edward Talbot and of Dr. Clarke he was appointed preacher at the Rolls in 1718, and in 1726 was promoted to the wealthy but secluded rectory of Stanhope. Before leaving the Rolls he published a collection of 15 sermons, which reveal his metaphysical rather than eloquent cast of mind, and are admirable for their logical symmetry. The first 8 of them are upon human nature, which he surveys as an organic system or constitution, and finds its law or ruling principle in the supremacy of conscience. Though he combats those moralists who make self-interest the only motive of action, and affirms the authority of the moral faculty over both the passions and affections of the soul, and the acts of life, yet he does not pronounce upon the nature of conscience, does not venture to designate it by a constant name, and it is difficult to say whether he regarded it as a power of sentiment or of reason. After 7 years of retirement at Stanhope, he was appointed chaplain to Lord Chancellor Talbot, and in 1736 became clerk of the closet to Queen Caroline, who sought to adorn her court by the presence of divines as well as statesmen. In that year he published his "Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature." This work, though but a commentary on a pregnant passage of Origen, and though its argument has but a narrow compass, is yet one of the most profound and original theological studies in the language. It is designed neither positively to establish religion nor directly to answer objections to it, but only to prove that the principal preconceived objections which are raised against Christianity may also be raised against the structure of the universe and the course of nature. By presenting parallel difficulties in admitting the divine authorship of nature and of the Christian revelation, he does not demonstrate the latter, which can only be done by positive evidence, but he destroyed the *prima facie* advantage which the deist of the 18th century had assumed in discussion with Christians. His argument does not pretend to establish the truth of Christianity, but is irresistible

in removing the anterior obstructions to a consideration of its evidences. This work, the fruit of many years' reflection, is composed in a most compressed and ungraceful style. Sir James Mackintosh says that no other thinker so great was ever so poor a writer. In 1738 Dr. Butler was made bishop of Bristol, whence he was promoted in 1750 to the see of Durham. A charge which he delivered to the clergy of the latter diocese, upon the importance of ceremonial worship as subservient to the reality and power of religion, and the circumstance that he introduced into his chapel a white marble cross, gave rise to a report, contradicted by his nearest friends, that he had secretly joined, and that he died in, the Roman Catholic communion. His death occurred while on a visit to Bath in hope of recovering his health, which had rapidly declined, and he was buried in the cathedral of Bristol, where 2 monuments are erected to his memory. Dr. Butler is described as having possessed a pale, thin, placid face, and white hair hanging gracefully upon his shoulders. He was never married. Among his few eccentricities was a custom of walking for hours in his garden during the darkest nights of the year. His character and writings were highly estimated by Hume and Lord Kames, who both sought an introduction to him; which, however, he declined, "on the score of his natural diffidence and reserve, his being unaccustomed to oral controversy, and his fear that the cause of truth might thence suffer from the unskilfulness of its advocate."

BUTLER, COL. PIERCE M., governor of South Carolina, son of Gen. William Butler, born in Edgefield district, S. C., April 11, 1798, killed in the battle of Churubusco, Aug. 20, 1847. After completing his school education he became temporarily a clerk to his elder brother, George. When Mr. Calhoun was secretary of war, Butler was appointed to a lieutenantancy in the 7th infantry. He attained the rank of captain, and served in that grade for some years. However, on his marriage, he resigned his commission, and was made cashier of the bank of the state, at Columbia, of which he subsequently became the president. He resigned the office to accept a lieutenant-colonel's commission under the state, in the Seminole war in Florida, in the dragoon regiment of Col. Goodwin. Upon his return from Florida he was elected governor. On the expiration of his term of office he accepted the appointment from the U. S. government of agent for the Cherokees, west of the Mississippi; was removed from this office by Mr. Polk, who, however, appointed him to treat with the Comanche Indians. On his return to Washington to give an account of his mission, he received advice that he had been elected colonel of the Palmetto regiment of South Carolina, just then raised for volunteer service in the Mexican war. He at once accepted the appointment, and hurried home to his command. The rest of his career is that of the Palmetto regiment. It took part

in nearly every action following that of Cerro Gordo, until the conquest of Mexico, its flag being the first planted on the walls of the conquered city. In the battle of Churubusco Col. Butler, though already severely wounded, was gallantly leading his regiment, when he was shot through the head, and died on the field.

BUTLER, RICHARD, a major-general in the army of the United States, killed in the conflict between the Indians and the army of Gen. St. Clair, Nov. 4, 1791. The disaster of that day, and the death of Gen. Butler, were the consequence of a panic which had seized the militia in the first line on the sudden attack of the Indians. As Butler lay bleeding and helpless on the ground, a savage tomahawked and scalped him.

BUTLER, SAMUEL, an English poet, born at Strensham, Feb. 13, 1612, died in London, in 1680. The son of a farmer, he commenced his education at Worcester, and sought ineffectually the means of studying at Cambridge. As clerk to a justice of the peace he obtained leisure during several years to cultivate literature and the arts. He is afterward found in the family of the countess of Kent, where he enjoyed the use of a library and the conversation of the learned Selden, who often employed him as an amanuensis. He next appears, probably as tutor, in the family of Sir Samuel Luke, a Bedfordshire gentleman, an ardent Puritan, one of Cromwell's officers, and who is supposed to have been the original of Sir Hudibras. After the restoration he was appointed secretary to the earl of Carbury, president of Wales, who made him steward of Ludlow castle. At 50 years of age he married a widow of good family and fortune, but the fortune was lost by bad investment. In 1663 appeared the first part of "Hudibras," a poem in ridicule of the Puritans, abounding in wit, learning, satire, and ingenious thought, and which has remained without a rival in English burlesque poetry. The knight Sir Hudibras and his squire Ralph were as truthful representatives of English Puritanism as Don Quixote and Sancho Panza were of Spanish knight-errantry. They are made to present a most grotesque appearance, in ludicrous exaggeration of the affected language, dress, and moral severity of the Cromwellians. The poem exactly suited the prevalent taste of the time, and obtained the highest popularity. It was quoted by Charles II., studied by the courtiers, and applauded by the whole royalist party. The only recompense received by Butler was a present of £300 from the king. Two other parts of it were published in 1664 and in 1673, but it was left unfinished. Many of its allusions have now become unintelligible without notes, and its condensation of thought and style and its monotony of wit make its continuous reading wearisome. Although Butler enjoyed a great reputation at a brilliant court and among distinguished men, there is even less known of the later than of the earlier part of his life, and it is only certain that he died in poverty and obscurity in a mean street in Lon-

don. Among his shorter poems is one on the "Elephant in the Moon," in which he ridicules what he deemed the whimsical philosophical researches of the royal society. Of his few prose works, the "Characters" are the most interesting. Sixty years after his death a monument was erected to his memory in Westminster abbey.

BUTLER, DR. SAMUEL, bishop of Lichfield, Eng., born at Kenilworth, in the county of Warwick, Jan. 8, 1774, died at Eccleshall castle, Staffordshire, Dec. 4, 1839. He was educated at Rugby and Cambridge, in 1797 was elected fellow of his college, and in 1798, in his 25th year, was appointed head master of the endowed school of Shrewsbury, in which he continued 38 years. While thus occupied, permanently obtaining reputation and rapidly amassing wealth, he successively received several church preferments: in 1802, the vicarage of Kenilworth, his native town; in 1817, a prebendal stall in Lichfield cathedral; in 1822, the archdeaconry of Derby. He was made D. D. in 1811, and was appointed bishop of Lichfield in 1836. His health began to fail soon after this promotion, which he lived to hold only 3 years. His best known literary production is his edition of *Æschylus*, from the text of Stanley. Previous to his appointment to Shrewsbury, he was requested to prepare this by the syndics of the Cambridge university press. This work appeared in 4 vols. 4to, in 1809-'16. Dr. Blomfield (since bishop of London) severely criticized the first 2 volumes in the "Edinburgh Review," and was attacked for doing so in a "Letter" from Dr. Butler. In conjunction with the Rev. Francis Hodgson, Dr. Butler translated Lucien Bonaparte's epic of "Charlemagne." He published numerous tracts and sermons, but his best works were educational.

BUTLER, SIMMON, an American publisher and bookseller, born in 1770, died in 1847, at Northampton, Mass., where he had begun business in 1792. The booktrade in this country was then in its infancy, and his establishment was the first of the kind in western Massachusetts. It required no small amount of enterprise and resolution to commence the publishing business at that time in a retired country town, at a distance from market, yet he conducted it with so much caution and skill that after the lapse of 60 years the house and the business are still continued. As early as 1800 he published an edition of Vattel's "Law of Nations," the first printed in the United States, and at the same time the first volume of the first edition of the Massachusetts supreme court reports; also, Dwight's "School Geography," which became so popular as to require a yearly issue of 20,000 copies. He also engaged in papermaking, and made the first American letter paper used by the senate of the United States.

BUTLER, WILLIAM, a general of militia in South Carolina, born in Prince William co., Va., in 1759, died in Sept. 1821. He became a lieutenant in the army of Lincoln in 1779, was



engaged in the battle of Stono, and served in the famous corps of Pulaaki, until the death of the latter, at the siege of Savannah, disorganized his legion. The fall of Charleston soon followed the disastrous defeat of the Americans and French before Savannah, and the militia was temporarily dispersed, while the continental forces were in captivity. But, with the first rising of the partisan leaders of Carolina, William Butler joined the troops under Gen. Pickens. Subsequently, he served with Lee, under Greene, at the siege of Ninety-Six, and was detached on several separate services, involving the necessity of equal celerity, courage, and vigilance. It was on one of these expeditions, while under the command of Gen. Henderson, that Butler first met the lady, Behethland Foote Moore, whom he subsequently made his wife. After Greene's defeat at Ninety-Six, Butler joined the legion of Lee for a season, but soon took the field as a partisan, served for a while with Pickens, and at length rose to a command of mounted rangers. At Dean's Swamp, associating his command with that of Capt. Michael Watson, they were severely handled in a fight with a superior force of loyalists. Watson fell, and Butler took the command, continued to fight against the greatest odds, and only escaped massacre by the timely arrival of a reinforcement from Orangeburg. In another sharp struggle with a similar enemy, upon the Edisto, when Judge Ryan, the first in command, was shot down, Butler assumed the lead and succeeded in driving the foe across the river. While in command of the rangers, under Pickens, he had frequent conflicts with the notorious Bill Cunningham, one of the most reckless and desperate of all the loyalists. In the fall of 1781, near Carradine's ford, they had one of these sharp passages, which was rather a duel than a battle, and enlivened by many curious incidents. Butler, goaded by personal enmity, pursued Cunningham for miles with a vindictive spirit fully equal to his own. It was a prolonged running fight of several hours, frequently renewed. Butler served thus to the close of the war, was a favorite of Pickens, and usually employed in services which called for audacious enterprise and rapid movement. In 1784 he married Behethland Moore. Soon after he was nominated as brigadier-general by Pickens, who then held the rank of major-general. Pickens resigning in 1796, the legislature elected Butler to that dignity. In 1800 he was elected to congress, in opposition to Robert Goodloe Harper. He took his seat in 1801, and served till 1806, when he was appointed chairman of the committee of investigation in the case of Wilkinson, charged with complicity in the Burr conspiracy. Wilkinson making some offensive remark touching a "prosecuting militia general," Butler resigned his place as chairman, and sent Wilkinson a message. The result was a much friendlier temper on the part of the latter. A major-general of militia at home, Butler declined the

commission of a brigadier in the regular service, which was tendered him by Madison. In 1813 he resigned his seat in congress, in order to make way for Mr. Calhoun. In 1814 he was called, by a very complimentary order from Gov. Allston, to take command of the forces of South Carolina, which state was then supposed to be in danger of British invasion. He repaired to Charleston for this purpose, but the menaced danger passed off, and the blow subsequently fell on New Orleans. Butler retired at the close of the war, and resumed the duties of his farm. In the interval between our two wars with Great Britain, he was elected a member of the convention of 1787, in Charleston, to consider the adoption of the federal constitution, and, along with Gen. Sumter and others, voted against it. He was subsequently a member of the convention which framed the present constitution of the state; was for some time a member of the legislature; was sheriff (then an officer of high distinction) in 1794; and at one time served as a magistrate. He was large and handsome of person, 6 feet high, a bold rider, with a great passion for horses, active, eager, and determined. He was remarkable for the fearless independence of his character. He sought the turf with pleasure, ran famous horses, kept none but blooded animals, and made his own sons break his colts, even at the peril of their necks. Tradition preserves sundry remarkable stories of his own dare-devil horsemanship. He had numerous children. Two of his sons, James and George, died the same month and year with himself. James was sheriff of Edgefield district, and a colonel of cavalry. George was a lawyer, but, during the war of 1812, served as major in the regular army. William was a physician, and served as surgeon at the battle of New Orleans; he was also, for a single term, a member of congress. Frank died as colonel of the Saluda regiment.

BUTLER, WILLIAM ALLEN, a living American lawyer and poet, born in Albany, N. Y., in 1825. He graduated at the New York university in 1843, studied his profession in the office of his father, Hon. B. F. Butler, travelled in Europe from 1846 to 1848, and since his return has been actively engaged in the practice of the law in New York city. He published an academic poem, entitled the "Future," in 1846, and has contributed many papers in prose and verse to the "Democratic Review," the "Art-Union Bulletin," and the "Literary World." In 1850 he published a volume of the character of "Rejected Addresses," entitled "Barnum's Parnassus," and in 1857 the poem of "Nothing to Wear," which passed through numerous editions, and was followed by many imitations. A new poem by Mr. Butler, entitled "Two Millions" was issued in the summer of 1858.

BUTLER, WILLIAM ORLANDO, an American general, born in 1793, in Jessamine co., Ky., whither his father, Percival Butler, a native of

Pennsylvania, who was made adjutant-general during the war of 1812, had removed in 1784. The son was about devoting himself to the legal profession, when the war of 1812 broke out. Enlisting as a private soldier in Capt. Hart's company of Kentucky volunteers he gained distinction in the battles at Frenchtown and the river Raisin, and having been for a short time detained in prison by the English, he was, on returning home, promoted to a captaincy. Subsequently he took a conspicuous part in the battles of Pensacola and New Orleans, was brevetted major, Dec. 23, 1814, acted as aide-de-camp to Gen. Jackson from June 17, 1816, to May 31, 1817, when he tendered his resignation, resuming for the next 25 years the profession of the law, marrying, and residing at his patrimonial estate, near the confluence of the Kentucky and Ohio rivers. From 1839 to 1843 he served as a representative in congress from that district, in the interests of the democratic party. Nominated as a candidate for governor of Kentucky in 1844, he was defeated by the influence of Mr. Clay. Created major-general, June 29, 1846, he led with great spirit the daring charge at Monterey, and although wounded on that occasion, he still remained for several months with the army. By resolution of congress of March 2, 1847, a sword was presented to him in testimony of his services. On Feb. 18, 1848, he succeeded Gen. Scott in command of the army in Mexico. The most important operation during his tenure of this office was the defeat of Padre Jarauta and his guerilla forces by Gen. Lane. His military administration in Mexico was brought to a close on May 23, 1848, when he announced the ratification of the treaty of peace. After his return to the United States he was nominated in 1848 by the democratic party as candidate for the vice-presidency, Gen. Cass being the candidate for president, but was defeated by the election of Gen. Taylor.

BUTRET, O. DE, baron, a French horticulturist, died at Strasbourg in 1805. He was of a noble family, but renounced his rank and fortune in favor of his younger brother. His book on the pruning of fruit-trees has been repeatedly reprinted. He had made preparations for a magnificent garden and horticultural school in the vicinity of Strasbourg when the revolution obliged him to leave France. He passed to the court of the elector palatine, who intrusted to him the management of his gardens.

BUTT, ISAAC, an Irish politician and lawyer, born at Glenties, county of Donegal, Ireland, 1818. He obtained a scholarship in Trinity college, Dublin, in 1833, and graduated with distinction in 1836, taking honors in classics and mathematics. In May, 1836, he was elected to the professorship of political economy (founded in 1832, by Archbishop Whately); was called to the Irish bar in 1838, and made queen's counsel in 1844. In the Irish state trials of 1848, Mr. Butt defended several of the accused. He was an alderman of Dublin for some years. In

1850 he unsuccessfully contested the parliamentary representation of Mayo, and sat for Harwich from May till June, 1852. He was elected M. P. for Youghal in 1852, and again in 1857. Mr. Butt has written a novel, as well as political pamphlets, and was the first editor of the "Dublin University Magazine."

BUTTAFUOCO, MATTEO, a Corsican general and diplomatist, born in 1730 at Vescovato, died in 1799. When the duke de Choiseul determined to re-unite Corsica to France, Buttafuoco was one of his principal agents. In 1768, when the Genoese ceded to France their claim to Corsica, it being impossible for the island to maintain an independent existence, Buttafuoco favored and contributed to its simple incorporation into the French kingdom. He was chosen deputy from Corsica to the states general in 1789, and there avowed himself a partisan of the old régime. This course excited great displeasure among his compatriots, and in several of the Corsican towns he was burnt in effigy. He also received an angry letter from Napoleon himself, then only a lieutenant of artillery at Auxonne.

BUTTE, a northern county of California, bordering on Utah, and having an area of about 5,000 sq. m. The surface is uneven, and in some parts mountainous, being traversed by the Butte mountains, from which it is named, and having several remarkable elevations, one of which, called Table mountain, bears a strong resemblance to a castle. The highlands are generally covered with noble pine and cedar forests; the valleys are also well wooded, watered, and fertile. The productions in 1856 were 165,000 bushels of wheat, 210,000 of barley, and 6,000 oats. There were 2 grist mills, 16 saw mills, and 1 newspaper office. The county is exceedingly rich in minerals, embracing not only gold, but also platinum, silver, quicksilver, iron, and lead. In 1856, there were 24 large quartz-crushing mills in operation, and the amount of capital invested in river mining on Feather river and its forks was \$490,000. The annual yield of the placer mines was estimated at \$800,000. Capital, Hamilton. Pop. in 1852, 8,572.

BUTTE RIVER rises in Butte co., California, and taking a S. S. W. course, joins the Sacramento in Sutter co.

BUTTER (Gr. *βούτυρον*; *Bovus*, a cow, and *ruptos*, cheese or coagulum), the oily matter in milk, which, when separated from it, is solid at ordinary temperatures. It exists in the milk in the form of globules, and these tend to rise from the serous part of the milk, and collect in the cream on the surface, of the substance of which it forms about 4.5 per cent. Mention is several times made of butter in the English version of the Old Testament, but the Hebrew word thus translated is supposed by scholars to mean some liquid preparation of milk or cream. The oldest distinct allusion to butter is by Herodotus. In the works of other writers of about the same period reference is made to it. The Thracians

ate it; but the Greeks regarded it as a wonderful kind of food. It appears to have served as an ointment, and to have been in very general use for this purpose among the different nations of Europe. It is related by Plutarch that a certain Spartan lady visiting Berenice, the wife of Deiotarus, the former smelt so strongly of sweet ointment, and the latter of butter, that neither could endure the other. Dioscorides describes how butter is made by agitating the fattest milk, as that of the sheep; and Galen treats of the comparative qualities of that made from the milk of different animals; but none of these early writers make any mention of its being used except as an ointment in the bath, or as a medicine, by any other people than the Thracians and the ancient Germans. Cheese appears to have come into general use as food long before butter, and to this day among the nations of southern Europe the latter article is sold by the apothecaries as a medicine, its place as an element of food being occupied, as it always has been, by vegetable oils.—Milk consists of whey or serous matter, in which the caseine or cheese is held in solution, and with which the butter globules are mechanically mixed. When thoroughly separated from the other substances, these globules form the solid butter, but there is always more or less water intermixed, and some caseous matter also, which by its fermentation induces the rancidity in butter long kept. Dr. Thomson found a sample of the best butter to consist of water 12.79, butter oil 86.27, and caseine or curd 0.94. The butter oil is soluble in ether, and the caseine is not. The proportions of the ingredients may hence be ascertained by making this solution after the water has been expelled at a temperature of  $212^{\circ}$ ; but if other ingredients are present, they must be estimated by other processes; thus salt is determined from the amount of ash left by a weighed portion of the butter after incineration. Butter oil is a substance of very complicated composition, in which no less than 6 different organic acids are detected, and a sweet sirup called glycerine, with which these acids are combined. Bromists found in 100 parts of butter 68 parts of margarine, and 80 of butyroleine—compounds of margaric and butyroleic acids with glycerine. The remainder was glycerine divided among butyric, caproic, caprylic, and capric acids. When milk or cream (which most abounds in the fat globules) is agitated, as in the process of churning, these globules are in part broken up and run together, forming at last a mass of butter. No chemical change is involved in this, though the ingredients of the milk are thus made to separate in part from each other. The product is obtained from sweet cream, or from cream that has become sour, and as the latter yields it more readily, it is usually preferred for churning. Milk has the disadvantage of requiring a large quantity to be made use of to produce a small amount of butter; and the residue, called buttermilk, involves a considerable loss, unless

in localities where this finds a more profitable use than to be fed to swine. Still the largest quantity of butter may be obtained from the entire milk. The temperature at which the process is conducted is found to have an important effect upon the result, not only in the time required to separate the butter, but also in its quality. The most suitable temperature is found to be from  $50^{\circ}$  to  $55^{\circ}$  F., the lower degree being the best for cream, and the higher for milk. During the process the temperature rises three or four degrees. The process requires some experience in order to conduct it at the most advantageous rate: if butter made from cream is more than an hour in forming, it is apt to be strong-tasted; and if made in less than three-quarters of this time, it is soft. The vessel used for this operation is called a churn, and is made in a variety of forms, some of which are described in the article *CHURN*. They are usually preferred of wood; but of whatever material they may be, the most particular attention is required to keep them, as well as the other utensils employed, in a perfect state of cleanliness. Even the making of butter by persons whose hands are liable to be moist by perspiration is objected to; and in all cases, in a well-kept dairy, meal, instead of soap, should be used for washing the hands. The purity of butter is so easily affected, that even the place in which it is made should be free from all bad odors. When formed in the churn, it is removed to a small tub, and then worked by kneading it with the hands, with the free use of cold water for thoroughly washing it. Little spades are sometimes in part substituted for the hands. By this operation and beating it with the hands, the buttermilk is, or should be, entirely separated. If any remains, the caseine and sugar contained in it are subject to decomposition, the former becoming putrescent, and the latter changing into acetic acid, thus spoiling the butter. If intended to be kept a long time, it may be preserved after the method practised in India and in some parts of Europe. It is dissolved by heat into oil, by which the water it contains is removed; straining the oil, the caseine is left in the cloth; then being put up in tight bottles it becomes solid, and is subject to no further change. This is the substance called *ghae* in India. In this country and in England another process is adopted for its preservation. To the butter fresh from the churn a quantity of fine salt, amounting to an ounce to the pound, is added and thoroughly incorporated with it. This is effected to the best advantage by working in one-half one day and the remainder the next. Common salt contains, beside the pure chloride of sodium, soluble compounds of lime and magnesia; these impurities it is desirable to remove, which may be done by saturating the whole with water sufficient to dissolve them, but not any considerable quantity of the pure salt, pouring off the liquid, and straining and drying the remainder in a clean cloth. In Ireland a mixture of one part sug-

or, one of nitre, and two of the best salt, is used instead of salt alone, at the rate of an ounce to the pound, and the flavor it imparts is very highly recommended. For the casks, wood entirely free of moisture is essential; and if the pyroligneous acid has been removed from it by boiling, it is all the better; if it remains in the wood it is liable to act upon the salt in the butter, converting it into brine. In packing, care is required to thoroughly incorporate each portion, as it is added to that already in the keg, so that no receptacles for air are left among the butter. The surface being made smooth, it is covered with a little salt and a cloth moistened in brine.—The quantity of butter contained in milk is very variable; some yielding not more than 8 pounds to the 100 of milk, and some instances being recorded of more than double this product. Dr. Muspratt possessed an Alderney cow that gave milk so rich, that from 14 gallons, weighing 144 pounds, 10½ pounds of butter were obtained, being equal to 6.788 per cent. of the milk. From one cow of very good quality a fair average product of butter is one pound per day; but more than 8 times this quantity has been sometimes obtained for several weeks together. From the general run of cows the yield, however, is much less, varying with the pasturage and the feed. The flavor of the butter is more or less affected by the food of the cow, the taste of the onion and the turnip often being imparted to the milk and its products.—As butter is sold, it is sometimes found to be adulterated with a considerable excess of water and of salt. By the investigations of Dr. Hassall it appears that in the salt butter sold in the London market, water and salt are incorporated in quantities varying from 10 to nearly 85 per cent. of the weight.—The state of New York produces about ¼ of all the butter that is made in the United States. In 1856 the total product was 90,293,078½ lbs., of which Delaware and St. Lawrence counties produced over 4,000,000 lbs each, and Chautauque, Chenango, Jefferson, Orange, and Otsego counties over 3,000,000 lbs. each. By the census of 1850, the product of butter in the state was 78,766,094 lbs. The total value of the butter produced in the United States in 1850 is estimated at \$50,135,000.

**BUTTER TREE**, a plant of the genus *bassia*, discovered by Park in the interior of Africa, which yields from its kernels, by pressure, a white, hard, and rich butter, which will keep a year without salt. Other species, which have the same property in a less degree, are found in India.

**BUTTERFLY**, the popular name of several families of insects of the order *lepidoptera*, undergoing a complete metamorphosis, having 4 wings, and a tongue changed into a suctorial organ; from the last character they come under the sub-class of *haustellata* of Fabricius. The term butterfly includes all the diurnal lepidoptera, or those which fly by day, of which the *papilionida* are the principal family; the

other families, as given by Mr. Stephens, are *nymphalida*, *lycanada*, and *hesperiada*. The crepuscular and nocturnal lepidoptera will be noticed under the articles *HAWK-MOTH* and *MOTH*. The order was named by Linnæus from the Greek words, *λεω*, -*δος* (scale), and *πτερος* (wings), indicating the characters peculiar to the wings, which are covered on both sides with imbricated scales or feathers, to the unassisted eye presenting the appearance of dust or powder, but under the microscope displaying an arrangement as uniform and characteristic of species as that of the scales of fishes and the feathers of birds. The beauty of this order has made them the special study of naturalists and the delight of collectors, so that their habits, metamorphoses, and structure are very well known; the most interesting and instructive points are connected with their metamorphoses, and these will be more fully alluded to under the article *CATERPILLAR*. In the lepidoptera, the parts about the mouth are changed into suctorial organs; the mandibles are very much reduced, and the *maxilla* are transformed, each into a semi-canal, extensile, and capable of being rolled up spirally, which, when united, form the suctorial organ (*lingua spiralis*); at the base of this organ are 2 very short maxillary palpi, between which and the hairy labial palpi it is sheathed when rolled up; this tongue, if it may be so called, is very long in the butterflies. In the caterpillar state these organs are masticatory and not suctorial, adapted for the food of these voracious larvæ, while in the perfect insect the long tongue is necessary to obtain the liquid honey contained in the deep calyces of flowers. In some species the anterior and lateral surfaces of the maxillæ are provided with a considerable number of minute papillæ, which are probably organs of taste as well as of exquisite touch. The eyes are compound. The abdomen has 6 or 7 segments, is attached to the thorax by a very small portion of its diameter, and has no sting nor ovipositor; the legs are 6 in number, each composed of 5 parts, and the tarsus with 5 articulations; in some genera the anterior pair are short and folded against the chest, and entirely useless as locomotive organs. The ventral nervous system consists of 7 ganglia, the first 2, the largest, belonging to the thorax; the connecting cords are single, except between the thoracic ganglia. In the caterpillars the ventral cord consists of 11 nearly equal ganglia; during the pupa state the 1st and 2d, and the 8d and 4th, are fused together, forming the 2 thoracic ganglia, which send off the nerves to the legs and wings; the 5th and 6th are also fused into one. Respiration is effected by means of *tracheæ* extending through all parts of the system, and opening externally by *stigmata* on the sides of the body; the trunks arising from the stigmata open into two large lateral canals, from which the tracheæ branch off. They have a well-marked urinary apparatus; the Malpighian or uriniferous tubes are usually 6 in number, long,

free, and open into the stomach by 2 excretory ducts; the tubes contain cells, disposed in rows, filled with very fine granules of a dark or brownish color; on the rupture of the cells, their contents pass into the stomach and digestive canal, and are either evacuated with the feces, or separately as a troubled liquid; it is well known that they emit a considerable quantity of urine, when bursting from their pupa envelope. The two sexes are distinct, and the rudiments of the sexual organs exist in the youngest larvæ, though their development takes place principally during the pupa state; the females lay their eggs, which are numerous and varying in form according to the species, upon such vegetable substances as the larvæ are to feed upon; the time at which the eggs arrive at maturity coincides with the end of the pupa state, so that the sexes are ready to unite soon after they leave this state; this act accomplished, both sexes soon perish; the spermatie particles are filiform and very active. The wings are membranous and veined, and covered with an immense number of beautiful scales, varying in size, shape, and coloration, implanted by a small pedicle resembling the stem of a feather. An idea of the immense number and exceeding minuteness of these wing-scales may be formed from the fact that Leuwenhoeck counted 400,000 on the small silk-worm moth; in a piece of modern mosaic work there may be nearly 900 separate pieces in an inch square, while the same extent of surface on a butterfly's wing may contain from 100,000 to 900,000; such is the wonderful superiority of nature's works to the finest specimens of human art. The life of the butterfly is a continued series of changes from the time of its leaving the egg till it becomes a perfect insect. As soon as the caterpillar is hatched it begins to eat eagerly, and increases rapidly in size during this larva state, changing its skin several times; before each change it ceases to eat, remains motionless, and sometimes attaches itself by a slight web to the under surface of a leaf; it gets rid of the old skin by various contractions of the whole body, which separate the dry and shriveled covering on the back, the insect escaping in the course of a few minutes; sometimes the internal lining of the alimentary canal, from the mouth to the extremity of the body, comes away with the skin; the latter takes place most frequently when the larva is about to change into a pupa, and often proves fatal. When the full-grown caterpillar is ready to assume the pupa, nymph, or chrysalis state (for these are synonymous), it ceases to eat, evacuates the intestines, and suspends its contracted body to the under surface of some object, either by its legs, head downward, or by a little rope of silk; after remaining suspended several hours, it changes its skin for the last time in the manner above alluded to; the legs, antennæ, and wings are extended along the body, and the whole is strengthened by the drying of the transparent

fluid which facilitated the separation of the skin. In the pupa state the insect does not eat, and remains perfectly quiet; the pupa of the lepidoptera is called "obtect," because the future limbs are seen on the outside of the case. The duration of the butterfly in the pupa state depends much on external circumstances; if this condition happen in the hot period of summer, the perfect insect may appear in 8 or 9 days; it may be prolonged to 2 or 3 weeks, and may even exist during the whole winter; during this state the insect is in a condition like that of the hibernating animals, respiration and circulation being reduced to their minimum in the first part of its confinement, but becoming active toward the close. At the proper time the pupa case is burst open, and the perfect butterfly suspends itself with its new wings hanging downward; after these have become developed fully by active respiration and circulation, the insect remains at rest a short time until the external covering becomes hardened, forming the dermo-skeleton; it is then the perfect butterfly, which sips the honey from the flowers, reproduces, and dies.—The butterflies, properly so called, fly only during the day, and at rest usually hold their wings erect; the antennæ are terminated by a little club, or are filiform in a few genera; they are the only lepidoptera, a few moths excepted, in which the lower wings do not have a rigid bristle or fringe to retain the upper pair; their caterpillars have always 16 feet, and the chrysalis is naked, attached by the tail, and in general angular. Linnaeus comprised all the butterflies under the genus *papilio*, but Latreille divided them into two sections, as follows: Section 1 contains all those which have a single pair of spines on the posterior extremity of the tibia, the wings perpendicular when at rest, and the antennæ usually club-shaped at the end, but sometimes filiform; this includes the genera *papilio* and *hesperia ruralis* of Fabricius, and is itself divided as follows: 1st, those in which the 3d articulation of the lower palpi is sometimes almost wanting, at others distinct, but as well covered with scales as the preceding one, and the hooks of the tarsi very apparent; some of them are 6-footed, all the feet formed for walking, and nearly the same in both sexes, and their chrysalis in addition to the common posterior attachment is fixed by a silken thread across the body, or enclosed occasionally in a large cocoon, and the central partition cell of the under wings is closed underneath; in the 4-footed species the chrysalis is simply attached by the tail; the caterpillars are elongated and almost cylindrical; 2d, those in which the lower palpi have 3 distinct joints, of which the last is nearly naked or with much fewer scales than the preceding one, the hooks of the tarsi very small and scarcely projecting, and the discoidal cell of the under wings open behind; the caterpillars are oval, or formed like the sow-bug; the chrysalis short, contracted, smooth, and attached by a silken thread across

the body. Section 3 is composed of species whose posterior tibiae have 2 pairs of spines, one at the end and the other above; whose lower wings are commonly horizontal when at rest, and whose antennae often end in a bent point; the caterpillars, few of which are known, fold up leaves, and spin within this covering a thin silken cocoon, in which the chrysalis is developed, smooth and without angular projections.—Among the genera of the 1st division of section 1 is: *Papilio* (Latr.), remarkable for their elegant shapes and beautiful colors; those spotted with red on the breast Linnaeus called *equites Troes*, or Trojans, and those without the spots *Achivi*, or Greeks. They are found in the tropical and temperate zones of both hemispheres; the caterpillars, when touched, thrust forth from a slit in the 1st segment just behind the head a pair of soft horns joined together somewhat like the letter Y; these are scent-organs, giving out an unpleasant odor, and doubtless designed for their protection against flies and ichneumons. Many have the under wings elongated, as the *P. machaon* (Linn.), a European species of large size, with yellow wings spotted and striped with black, the under ones having some blue spots near the posterior edge, one of which is like an eye with red at the internal angle; the caterpillar is green, with black rings dotted with red, and feeds on the leaves of the carrot, fennel, &c. Of the American species, one of the finest is the *P. asterias* (Cramer.), whose wings expand about 4 inches; it is of a black color, with a double row of yellow dots on the back, a broad band of yellow spots across the wings, and a row of yellow spots near the hind margin; the lower wings are tailed, and have 7 blue spots between the yellow band and the outer row of yellow spots, and near the posterior angle an orange eye-like spot with a black centre; the spots on the under side are tawny orange. This species is very numerous in July, hovering over flowers, especially the sweet-scented phlox; in this and the following months the eggs are laid singly on various umbellate plants; the caterpillars have been found on the parsley, carrot, parsnip, celery, and other garden vegetables, to which they are quite destructive; they come to their growth toward the end of September, when they become chrysalids, in which state they remain all winter, being transformed into butterflies in May or June following. Another of our common and beautiful species is the *P. philenor* (Fabr.), with tailed greenish-black wings; the superior wings with 4 or 5 white spots on the margin, most conspicuous beneath; the lower wings highly polished green, with 6 pearl-white spots before the margin, beneath with a broad green border upon which are 7 large fulvous spots, each surrounded by a black ring, and marked by a lateral white spot, and about 6 small white dots on the inner edge; thorax black, breast dotted with yellow, abdomen green with a lateral double row of whitish dots; the female is the largest, with brown wings and coppery reflections. The *P. Turnus*

(Linn.), a common American species, somewhat resembles the *P. machaon* of Europe; the general color of the wings is yellow, bordered with black dotted with yellow, with 5 partial bands of black anteriorly; on the lower wings are 6 yellow lunules in the black margin; the anal angle fulvous edged with white, with 2 or 3 green spots near it; the body above is black, with a yellow lateral line; breast yellow, with 2 oblique lateral black lines. In the mountainous regions of Europe and Asia is found the genus *Parnassius* (Latr.), the females of which have a horny boat-shaped pouch at the end of the abdomen; the caterpillars make a cocoon of leaves united by silken threads. A well-known species in the Swiss valleys is the *P. Apollo* (Linn.), white, spotted with black, with white eye-like spots, edged with red on the lower wings; the caterpillar is velvety black, with a row of red spots on each side and one on the back. The genus *thais* (Fabr.) is characteristic of the south of Europe. In the preceding genera the internal margin of the lower wings is more or less concave; in the genus *pontia* these are dilated beneath the abdomen so as to form a groove. The butterflies of this genus are found in various regions of the globe, and are commonly seen flitting over the fields and moist places, mounting high in the air when they meet a companion; the caterpillar has no protruding tentaculum on the neck, and the chrysalis is suspended by a thread passed across the body. The genus *pontia* includes the British cabbage butterflies, 9 or 10 species, of a white or yellow color and small size; the general color of the caterpillars is green, and in this state they are very injurious to the vegetable garden. In Massachusetts there is a white butterfly, *P. oleacea* (Harris), which hovers over the cabbage, radish, and turnip beds about the last of May or beginning of June, for the purpose of depositing its eggs; these are fastened, to the number of 8 or 4 on each leaf, to the under surface; they are hatched in a week or 10 days, and the caterpillars attain their full size in 8 weeks, about 1½ inch in length, and of a pale green color; they devour any part of the leaf; the chrysalis state lasts about 11 days, so that the perfect insects come out the latter part of July, and are ready to lay the eggs for another brood, the chrysalids of which survive the winter and come out in the following May. These butterflies fly low and lazily when about to deposit their eggs, and are easily caught in large numbers by a muslin net; the titmouse and other insect-eating birds devour the caterpillars with avidity. Among the 4-footed butterflies, one of the largest and handsomest genera is *Danaus* (Latr.), including the Fabrician genera of *euplexa* and *idea*, in which the antennae are terminated by a club, the inferior wings rounded and not forming a groove for the abdomen, and the upper wings more or less triangular. *D. plexippus* (Linn.), a common and large North American species, is of a fulvous yellow color, with dilated black veins, black margin dotted with

white, especially in the superior angle of the upper wings; body black, with numerous white dots on the trunk; the larva is ringed with black and white, with 2 slender processes on the anterior and 2 on the posterior part of the body; the chrysalis is of a delicate green color, with golden dots; it feeds on different species of *asclepias*, and is abundant in the middle and southern states. In the genus *argynnis* (Latr.), the anterior feet are short and feeble, the under surface of the lower wings is often decorated with silvery and opaline spots, or yellow ones upon a fulvous ground, and the upper surface varied with red or orange, with spots or lines of black or brown; the caterpillars are beset with spines. In England, where there are several species, these butterflies are called fritillaries. The *A. Diana* (Cramer), of the southern states, though not one of the handsomest of the genus, is yet pretty from the contrast of the blackish and pale orange of its upper surface, and from the slender silvery lines of the under surface of the lower wings; its general color above is a dark brown, with a very broad fulvous exterior margin, with a few blackish spots and nervures. The genus *melitæa* was separated from the last by Fabricius, and is distinguished principally by the yellow spots and checkered appearance of the under surface of the lower wings, and by the larva, which is pubescent, with small fleshy tubercles on the body, which is not armed with spines. The *M. myrina* (Cramer) is a pretty little species found from Massachusetts to Florida, somewhat resembling the *M. selene* of Europe; the wings are fulvous, with black spots and undulated lines; below there are more than 80 silvery spots, and an eye-like spot near the base of the inferior ones. In the genus *vanessa* (Fabr.), the knobs of the antennæ are short and broad; the palpi are long, curving, and contiguous, and form a kind of beak; the wings are jagged or tailed on the posterior edges; the under side of the lower wings is often marked with a golden or silvery character in the middle; the caterpillars are armed with numerous spines, often live in company, and do not conceal themselves under a web or within a folded leaf; the head of the chrysalis has 2 horn-like elevations and a prominence on the back resembling a nose, presenting rather a grotesque appearance; in both sexes the anterior pair of feet are short and very hairy, and the 2 posterior pairs with double nails. Here belong the tortoise-shell butterfly (*V. urtica*, Linn.), and the following 8 other British species: the "Camberwell beauty" (*V. antiopa*, Linn.), with angular wings of a deep purplish black, with a yellowish or whitish band on the posterior edge, and a row of bluespots above; the "peacock's-eye" (*V. Io*, Linn.), reddish fulvous above, with a large eye-like spot on each wing, on the upper reddish surrounded by a yellowish circle, the under blackish surrounded by a gray circle, with some bluish spots, and under the wings blackish; and the "painted

lady" (*V. cardui*, God., more properly placed by Mr. Stephens in the genus *cynthia*), with wings red above, varied with black and white, underneath marbled with gray, yellow, and brown, with 5 eye-like bluish spots on their edges. The following American species are worthy of mention: The antiopa butterfly (*V. antiopa*, Linn.), occurring, as has been seen, also in Europe; this butterfly passes the winter in some sheltered place in a partially torpid state; great numbers are sometimes seen crowded together in barns, apparently lifeless, with the wings doubled together over the back, but quickly becoming active on exposure to heat; it comes out very early in spring, often before the snow is off the ground, and may be seen sporting, with torn and faded wings, early in March in sheltered spots; the caterpillars despoil the poplar, willow, and elm of their foliage, on which they are found in great numbers early in June; they are black, with minute white dots, and a row of 8 brick-red spots on the top of the back; being nearly 2 inches long, and armed with spines, they were formerly supposed to be capable of inflicting dangerous wounds; the first brood is produced in June, and a second in August, which become perfect insects before winter. The semicolon butterfly (*V. interrogationis*, Fabr.) has the wings on the upper side tawny orange, with brown and black spots; lower wings generally black above, beneath reddish, or marbled with light and dark brown, and a pale golden semicolon on the middle, whence the name; the wings expand from 2½ to 2¾ inches, while those of the preceding are from 8 to 8½ inches; it appears in May, and again in August, and is seen till the middle of October in sunny places; the caterpillars live on the American elm and linden trees, and on the hopvine, to which they are very destructive; the spiny caterpillars are favorite receptacles for the eggs of the *pteromalus vanessæ*, a tiny chalcidid parasitic insect of the order *hymenoptera*, which destroys great numbers of the chrysalids in whose bodies the little maggots come to maturity. Smaller species are the *V. comma* (Harris), and *V. progne* (Fabr.), which are much alike, expanding from 2 to 2½ inches, above of a tawny orange, the fore wings bordered and spotted with black, the hind wings blackish posteriorly, with 2 black spots in the middle, and a row of bright orange spots before the hind margin, the under side marbled with light and dark streaks, with a silvery comma in the former species, and a silvery I in the latter, on the middle of the hind wings; the caterpillars are very much alike, being pale yellow, with a reddish head, white spines tipped with black, and a row of 4 rusty spots on each side of the body; they are found on the American elm in August. The genus *nymphalis* (Latr.), or *apatura* (Fabr.), contains some very large and beautiful species; the anterior feet are useless for locomotion, and the abdomen is received in a groove formed by the dilatation of the lower wings; the caterpillars are less spiny than in the

preceding genera. The purple emperor of Europe, *A. iris* (Linn.), has very strong and thick wings, and is capable of a high and long-sustained flight; instead of the zigzag motions of common butterflies, the species of this genus soar in a steady manner like a bird of prey; from their flying over the tops of forest trees, they are difficult to capture, and therefore highly prized by collectors; M. Godart has described more than 260 different species, some of which are found in this country. In the genus *morpho* (Fabr.), peculiar to South America, the antennae are almost filiform; in this are included some of the most gorgeous of the lepidoptera. In the genus *hipparchia* (Fabr.), or *satyrus* (Latr.), the antennae end in slight knobby or elongated swellings; the anterior feet are short, the hind pairs with double nails, the internal margin of the wings excavated to receive the abdomen, and the middle discoidal cell closed posteriorly; the caterpillar has no spines, but is downy, with the posterior extremity forked. It contains many species, the wings of which are often ornamented with beautiful eye-like spots; they frequent dry localities, over which they fly in a jerking and sudden manner. The *H. Andromacha* (Hubner), frequenting the southern and south-western states, has the wings brown, with submarginal blackish spots, beneath paler, with a series of eye-like spots. The *H. semidea* (Say), about 2 inches in extent of wings, is of a brown color, the lower wings marbled below with black and white; it inhabits the highest summits of the White mountains of New Hampshire, and, according to Say, seems to be confined to that region.—In the 2d division of the 1st section are several small 6-footed butterflies belonging to the family of *lycanada*; the caterpillars are short and almost oval, with feet so short that they seem to glide rather than walk, and they secure themselves by the hind feet and a silken loop across their bodies. Here belongs the genus *oryx* (Lam.), which contains many small species of an azure blue color, variegated with black and white. The genus *erycina* (Latr.), belongs to America; *polyommatus* (Fabr.) is named from the beautiful eye-like spots of the under surface of the wings, which are generally blue above in the males, and brown in the females. The genus *lycena* (Fabr.) includes the splendid little species called "coppers" by collectors. According to A. and O. Speyer, the *lycanada* and *erycinada* belong to the division of *heteropoda*, in which the anterior legs are of a different form in the 2 sexes; in the latter, the males possess cleaning paws; in the former, the males want claws on the anterior tarsi, and the claw joint ends in a sharp point.—The 2d section of diurnal lepidoptera includes the family of *hesperiada*, which frequent grassy places, flying short distances in a jerking manner, whence they are called "skippers" by English writers. The *hesperia malva* (Fabr.) feeds on the mallows, whose leaves it folds up, and in which it is changed; the wings are in-

dented, blackish brown above, with white dots and spots, beneath greenish gray with similar irregular spots; the caterpillar is gray, with a black head and 4 yellow points on the first ring, which is narrowed; the chrysalis is black, slightly powdered with blue. In the genus *eudamus* of Dr. Boisduval, is the *E. tityrus* (Fabr.) of this country; it expands from 2 to 2½ inches, and is of a general brown color; the 1st pair of wings with a transverse band and a few spots near the tip of a honey-yellow color; the hind pair with a short rounded tail, and a broad silvery band across the middle beneath. This large and handsome species appears about the middle of June, hovering over sweet-scented flowers; it flies so rapidly and strongly, that it is difficult to take it without injury; the females lay their eggs, singly, on the leaves of the locust (*robinia pseudacacia*) and *R. viscosa*; hatched in July, they roll themselves in a covering of the leaves, as a protection from the weather and birds; the full-grown caterpillar is about 2 inches long, of a pale green color, with transverse streaks of darker green, with a red neck and head; each lives in its own case, one end of which is left open for egress at night, at which time it feeds; they remain as chrysalids in their leafy cocoons during the winter; the viscid locust is sometimes completely stripped of its leaves by this caterpillar. Of the genus *urania* (Fabr.), Mr. Swainson says the butterflies comprising it "are, perhaps, the most splendid insects in creation. No art can effectually represent the changeable and resplendent green which relieves the velvet black of the wings, and which varies with every change of light. The typical species are found in tropical America, where they fly with amazing rapidity, and perform, like their prototypes the swallows, annual migrations."—The butterflies are to insects what the humming birds are to the feathered tribes, the analogy holding good not only in their brilliant colors and manner of flight, but also in the nature of their nutriment, the honeyed juices of the flowers. The happy life of the butterfly, flitting from flower to flower, from one sensual delight to another, resembles that of professed pleasure-seekers, the "butterflies of fashion," whose only object is enjoyment, whose existence is a blank, and whose lives add nothing to the progress of humanity; they are mere useless consumers of the products of other men's labors; a whole generation dies, and is deservedly forgotten. From the transformations of the butterfly, natural theology has drawn one of the most simple, beautiful, and convincing arguments for an existence beyond the grave. We see the airy, brilliant, perfect insect, derived from the crawling, disgusting, and voracious caterpillar—a worm transformed into a sylph—a change that no one, unless it had been actually seen, would believe possible. Reasoning from analogy, this emblem of the butterfly has seemed typical of the change of the corruptible into the incorruptible after death; the groveling human desires are represented by the creep-



ing caterpillar; in the chrysalis we have presented to us the darkness and stillness of the tomb; and in the butterfly we recognize a new-born existence of the spirit, freed from the imperfections of the earthly and finite, and rejoicing in the pleasures of immortality.

**BUTTERMILK**, the liquid which remains after separating the butter from milk by churning. It consists of the thin portion of the milk with the caseine or curd intermixed and some butter oil. When cream is used for churning, the buttermilk is much richer than if the entire milk is employed, and does not so readily sour. Sweet buttermilk is much esteemed by many as a pleasant and nutritious drink. In Scotland it is brought into the cities for sale like other milk. It is used to some extent in the preparation of a very good quality of bread.

**BUTTERS**, in chemistry, the name given by the alchemists to certain salts, generally chlorides of the metals, which have the consistency of butter, such as butters of arsenic, antimony, tin, &c. The name is still retained in some of the pharmacopœias. In vegetable chemistry it is applied to fixed oils extracted from vegetable products, which at common temperatures concrete and become solid. Such are the oils of the nutmeg, cocoa, &c.

**BUTTES**, a village of Switzerland, canton of Neuchâtel. Situated in a narrow valley, and surrounded by high mountains, its position is such that during many months of the year its inhabitants never see the sun. Pop. 1,200.

**BUTTISHOLZ**, a village and parish of Switzerland, canton of Lucerne. In its vicinity is a remarkable mound called Engländerhübel, or "Englishman's hillock." It is the grave of 8,000 Englishmen, followers of Enguerrand de Coucy, son-in-law of Edward III. and earl of Bedford. This nobleman, in the course of a quarrel with Leopold of Austria, began to devastate the Swiss cantons, when he was defeated by the peasants near Buttisholz, and a large number of his troops cut to pieces (1375).

**BUTTMANN, PHILIPP KARL**, a German philologist, born at Frankfurt-on-the-Main, Dec. 7, 1764, died in Berlin, June 21, 1829. He finished his education at Göttingen, and in 1788 was appointed assistant librarian to the king of Prussia, but was constrained to turn schoolmaster in order to supply the deficiencies of his salary. Experiencing the want of a good elementary Greek grammar, he published, in 1792, a small one of his own composition, which during his lifetime went through 20 editions. In 1808, when the new university was opened in Berlin, he was appointed one of its first professors. He subsequently published an etymological and an intermediate Greek grammar. The latter has been translated into English by Prof. Robinson, and the elementary grammar by Mr. Edward Everett.

**BUTTON**, an article used for the fastening of clothing and for ornament. Buttons may be divided into 2 classes, those with shanks or

loops for fastening them to garments, and those without. The manufacture of these useful articles involves various processes, some of them very interesting, and varying according to the materials used. These are metal, horn, shell, glass, mother-of-pearl, jet, and whalebone, beside the woven stuffs which are employed for covering button moulds. Birmingham is the most noted place in the world for the manufacture of buttons. In this country it is extensively carried on in Waterbury, Conn., and in Easthampton, Mass. The principal manufactories in the latter place were established about 1849 by Samuel Williston and Co., who had previously owned similar establishments in Haydenville, in the same state. They give employment to 250 hands, consume annually \$75,000 worth of stock, and produce from \$175,000 to \$200,000 worth of buttons. Recently an excellent button has been made in New Brunswick from India-rubber. In the manufacture of gilt buttons, brass containing very little zinc is used. This is furnished to the button-maker in strips, out of which the disks are cut by a machine. This process is so rapid that one person can prepare about 13 gross in an hour. The preparing of the shanks is a distinct branch of trade. They are made of brass wire, a coil of it being put into a machine, in which one end is pushed forward gradually to a pair of shears, and the wire is cut off in small pieces. It is then bent, and being compressed between the jaws of a vice, forms an eye. A small hammer next strikes the two ends, flattening them, and rendering the shank ready for use. The labor of fastening these to the button is performed by women. When properly adjusted, a little solder and rosin are applied to the spot where the two come in contact, which melts on being heated, and on cooling firmly unites them. The buttons, after thorough cleansing, are now ready for being ornamented, either silvered or gilded, as may be desired. If the former, a mixture of silver in solution, salt, and cream of tartar, with some other ingredients, must be stirred together, and the buttons washed with this preparation. For gilding, great care is necessary. An amalgam of gold leaf and mercury is used. This is gently heated, poured into cold water, and then strained through wash-leather to remove the excess of mercury. The portion left in the leather is dissolved in dilute nitric acid, and applied to the buttons. (See GILDING.) To so great a degree of refinement was this art carried in Birmingham, that three pennyworth of gold was made to cover a gross of buttons. The thickness of the precious metal could no hence have exceeded the  $\frac{1}{1000}$  of an inch. The next process is to free them from all the mercury by heat. For this purpose they are thrown into a wire cage within a furnace constructed in such a manner that the mercurial vapor is conducted into a vessel containing water, in which it condensed. This is termed drying off. Buttoning completes the work. As the fashion

buttons is constantly changing, new forms and new materials are always coming into use. Moulds covered with silk, velvet, &c., have of late in a measure superseded the gilt buttons. —Buttons without shanks are made of simple disks of horn, wood, or other material, with holes drilled through them, by means of lathe, for the purpose of sewing them on.

**BUTTON, THOMAS**, an English navigator in the early part of the 17th century, was the successor of Hudson in exploring the N. E. coast of North America. He sailed in 1612 with 2 vessels, the *Resolution* and the *Discovery*, passed through Hudson's straits, and was the first to reach land on the western coast of the bay. The point which he touched was in lat. 63°, and was named by him Carey's Swan's Nest. Being obliged to winter in this region, he selected a position near the mouth of a river, first named by him Nelson's, after the master of his ship. Every precaution was taken against cold and icebergs, yet the severity of the climate occasioned much suffering to his crew, and was fatal to a few of them. During the next summer he explored and named several places on the coast of Hudson's bay, and advancing to the lat. 65°, became convinced of the possibility of the north-west passage.

**BUTTONWOOD**. See **PLANE TREE**.

**BUTTRESSES**, props or supports on the outside to very tall structures, such as bridges which bear a heavy superstructure. In Gothic architecture a pilaster, pier, or masonry added to and standing out from the exterior of a wall.

**BUTTS**, the name of the hinges used for doors. These are cut out from strips of iron or brass in the form of 2 blanks of equal size, which by bending rollers are each turned over along a part of one edge, so as to form a cylindrical cavity for the insertion of the pin which holds them together, and on which the parts turn. The portion of metal which would have made the cylinder the whole length of the edge is cut out, that the 2 parts may fit into each other. By improved processes recently introduced they are now commonly made by casting melted brass or iron into the form above described, and the cast-iron is afterward commonly converted into malleable.

**BUTTS**, a central county of Georgia, bounded E. by the Ockmulgee river, watered by several creeks, and having an area of about 240 sq. m. It has a moderately uneven surface and a fertile soil. The productions in 1850 were 224,980 bushels of Indian corn, 51,339 of sweet potatoes, 24,690 of oats, 4,110 bales of cotton, and 1,540 lbs. of rice. There were 6 saw mills, 5 grist mills, 1 woollen factory, 2 tanneries, 12 churches, and 211 pupils attending public schools. The county was named in honor of Capt. Samuel Butts, an officer in the war of 1812. Capital, Jackson. Pop. in 1855, 6,883, of whom 3,076 were slaves.

**BUTTURA, ANTONIO**, an Italian poet, born at Malcesina, March 27, 1771, died in Paris,

Aug. 28, 1832. He was educated at Verona, and early made himself known by various poems, and also by his novel of "The Two Travellers." When the French revolution broke out, he became a leader of the French party in Italy, and received from Napoleon the appointment of secretary general of the congress of Venice. After the treaty of Campo Formio he removed to France, and became professor of the Italian language and literature at St. Oyr. Two years later he was appointed professor of history and belles-lettres at Mantua, and was subsequently employed in several political offices. He wrote a history of Venice and of Italian literature.

**BUTYRIC ACID**, one of a number of acids which are produced by the action of caseine in milk upon the sugar it also contains; lactic acid being first formed, and this by its decomposition producing butyric and carbonic acids and hydrogen. Its chemical formula is  $C_4H_7O_2 + HO$ . It is the substance which gives the rank smell to rancid butter. When obtained, as it may be from butter and from sugar, it is in the form of a clear, oily, volatile fluid. It combines with bases, and forms crystalline salts, which possess no taste. The compound of this acid and glycerine, also contained in butter, is called butyrine.

**BUXAR**, or **BAGSAR**, a town of British India, in the district of Shahabad, presidency of Bengal, situated on the south bank of the Ganges, about 60 miles below Benares. Pop. estimated at about 8,000. It is a large town, with houses built after the usual Indian fashion of mud and thatch, a few bungalows of somewhat better character occupied by Europeans, a good bazaar, and some handsome mosques. On an eminence near the river is a small fort, now dismantled. It is on the line of the railway under construction from Calcutta to Agra and Delhi. Buxar is celebrated for a victory, which confirmed the British in the possession of Bengal and Bahar, obtained, Oct. 23, 1764, by Major (afterward Sir Hector) Munro, with a force of 857 Europeans and 6,215 sepoy, over an army of from 40,000 to 60,000 men, commanded by Meer Cossim (or Cossim Ali Khan) and Sujah ud Dowlah, vizier of Oude. After an action of 3 hours' duration the Mogul force gave way, and was pursued by the British to a bridge of boats across a stream 2 miles from the field of battle. To save the bulk of his army and treasure, the vizier caused this bridge to be destroyed before the entire body had crossed, thus sacrificing 2,000 of his rear guard, but effectually checking the pursuit. The British loss was 847 men; that of the enemy amounted to about 4,000, beside 138 cannon.

**BUXHÖWDEN, FRIEDRICH WILHELM**, count, a Russian general of Livonian descent, born Sept. 14, 1750, at Magnusdal, died Aug. 23, 1811, at his estate of Lohde in Esthonia. He owed his first advancement to Count Orloff and to a rich marriage, after which he was engaged for many years against the Turks, and in Italy and Germany. In 1789 he

was made general, and in the next year conducted with success the campaign against the Swedes. He commanded a division of the army in the war against Poland, was in the storming of Praga under Suwaroff, was soon after appointed to the administration of Poland, and still later to the position of military governor of St. Petersburg. He was for a short time in disgrace and retired to Germany, but was restored to his offices upon the death of Paul I. At Austerlitz he commanded the left wing of the Russians, and in 1808 led a successful expedition against the Swedes.

BUXTON (Lat. *Bucostrum*), a market town and fashionable watering place of England, in the parish of Bakewell, Derbyshire, situated in a deep valley, 81 miles W. N. W. of Derby and 160 N. N. W. of London. Pop. in 1851, 1,285. It consists of a new and an old town, the former of which is the best built and contains the most interesting edifices. Its chief architectural beauty is the crescent, a range of buildings in the Grecian style erected by the 5th duke of Devonshire, in 1779-'86. They comprise hotels, a ball-room, a library, lodging houses, a bank, arcade, promenade, and a long range of stables with a covered riding gallery 160 yards round. Near by is the "Old Hall" (now an inn), where Mary, queen of Scots, once had her residence. It was built by the earl of Shrewsbury, to whom the custody of the unfortunate queen was intrusted by Elizabeth. The parish church is a modern edifice of great beauty. There are also several chapels, 2 schools, and fine public walks. The chief attraction of Buxton, however, is its mineral waters. They are celebrated for their medicinal virtues, particularly in cases of gout, rheumatism, and diseases of the digestive organs. They are saline, sulphurous, and charged with nitrogen. Their temperature is lower than that of the Bath waters, being about 100° F., and one of the wells has a double pump by which either hot or cold water may be obtained within a distance of a few inches from each other. There is also a chalybeate spring behind the crescent. Baths, both public and private, are numerous, and there is a charitable subscription fund, called the "bath charity," by which from 1,000 to 1,200 poor invalids are annually maintained for one month while using the waters. The fashionable season extends from June to October, and the town is then visited by from 12,000 to 14,000 persons. The vicinity abounds in charming scenery and has many natural curiosities. Half a mile distant is a large and remarkable stalactitic cavern called Poole's Hole, and not far off is the Diamond hill, so named from a profusion of crystals found in its soil which are sometimes dignified by the name of Buxton diamonds. The inhabitants are engaged chiefly in lime-burning and the manufacture of alabaster, spar, and other ornaments.

BUXTON, JEREDIAH, an English mental calculator, born at Elinton, Derbyshire, in 1705, died in 1775. He could not write, but possessed a great facility in performing mental arith-

metical calculations. He seemed unable to consider any thing save with respect to the number of its constituent parts. He heard a sermon, but remembered nothing of it except the exact number of words it contained, which he had counted. If the size of an object were named, he would instantly declare how many hair-breadths it contained. If an interval of time were stated, he would as rapidly state the number of minutes and seconds it was composed of. He scarcely had a system of calculation, as from his own obscure explanation, his method was clumsy and circuitous, though the operation was extremely swift. He walked to London to have a sight of the king, and was examined by the royal society, who asked him: "In a body whose 8 sides are, respectively, 33,145,789 yards, 5,642,782 yards, and 54,965 yards, how many cubical eighths of an inch are there?" His reply, calculated at once without one figure having been written down, was found to be correct. When taken to see Garrick perform Richard III., he amused himself by counting the number of words spoken, and how many each performer uttered respectively. Except with respect to this mastery of numbers, his intellect was much inferior to that of ordinary men.

BUXTON, SIR THOMAS FOWELL, a British legislator and philanthropist, born at Castle Hedingham, Essex, April 1, 1786, died at his residence near Aylsham, Feb. 19, 1845. He received his education at Donnybrook, and subsequently at Trinity college, Dublin. At the age of 21 he married Miss Gurney; by this marriage he became brother-in-law to Mrs. Elizabeth Fry. In 1808 he became a clerk, in 1811 a partner, and soon after principal manager of the brewery of Truman, Hanbury, and Co., of London. Locally connected with the manufacturing district of Spitalfields, the sufferings of the poor inhabitants were so apparent to him that, in 1816, he took an active part in a public meeting, by which £44,000 was collected for their relief. Prison discipline also interested him, and, in conjunction with Mrs. Fry and Mr. Hoare, his brother-in-law, he personally examined into the state of British prisons, and published the result of his inquiry. From this came the prison discipline society, which led to the removal of many of the evils pointed out. From 1818 to 1837, when he was defeated by Mr. Villiers, Mr. Buxton was member of parliament for Weymouth. For this period of nearly 20 years, he was constant in his attendance, and a frequent speaker. Prison discipline, the amelioration of the criminal law, the suppression of lotteries, the abolition of Hindoo widow-burning, and the abolition of slavery, were subjects on which he was always earnest, and sometimes, from that earnestness, almost eloquent. He cordially cooperated with Mr. Wilberforce on the anti-slavery question, and succeeded him as recognised parliamentary leader of the party; Brougham, Lushington, Macaulay, Mackintosh, and other able liberals, strongly supporting him. He was a member of the legislature which, in 1833

abolished colonial slavery, voting £20,000,000 to compensate the slave-owners. After he left parliament he employed his leisure in writing a book against the African slave trade. His last active part in public business was to participate in a meeting, held at Exeter hall, in 1840, under the presidency of Prince Albert, which led to the expedition to the Niger in the following year. His memoirs, which include an autobiography, appeared in 1848, edited by Mr. Charles Buxton.

BUXTORF, JOHANN, a German orientalist, born at Camen, in Westphalia, Dec. 25, 1564, died of the plague in Basel, Sept. 18, 1629. He was professor at Basel, and the most eminent oriental and Greek scholar of his day. His most important works are the Hebrew Bible with the rabbinical and masoretic notes, a Hebrew grammar, and a Hebrew and Chaldee lexicon. He was a Calvinist.—JOHANN, his son, born in Basel, Aug. 18, 1599, died there Aug. 16, 1664, succeeded his father in the chair of Hebrew at Basel, and occupied it for 84 years until his death. The same chair was filled by his son and his nephew successively during 68 years longer, making a combined occupancy of this professional chair by the Buxtorf family for an unbroken period of 140 years.

BUYUKDEREH, a little town on the western side of the Bosphorus, situated in the midst of a large, deep-bosomed valley. It is the summer residence of the Christian embassies at Constantinople, and its gardens and palaces, not less than its natural beauty and coolness, make it a favorite promenade ground. A group of plane trees, the most splendid on the Bosphorus,—the Russian palace, distinguished by the regularity of its architecture, and the extensive gardens of Baron Hübsch, are particularly mentioned. The tradition that Godfrey of Bouillon encamped here with his army is not alluded to in the original records of the crusades.

BUZEN, a province of Japan, in the island of Kioo Siao. It is separated from Nippon by the strait of Van der Capellen, and comprises 28 islands, all unimportant.

BUZZARD (*Buteonina*), the 4th sub-family of the birds of prey, *falconida*. Beak moderate, hooked from the base; tail equal. The buzzards agree with the hawks and falcons, sub-families 2 and 3, *accipitrina* and *falconina*, in having the wings short, and the bill crooked from the base. They differ from them both, in having the bill somewhat longer and weaker, and wanting the tooth on the upper mandible, which is one of the principal distinctions. There is, however, some approximation to this tooth in the first genus, *ictinia*, which has the edge of the upper mandible somewhat angularly festooned, or subdentulated, and the lower one distinctly notched. In the wings of the buzzards, the 8d and 4th quill feathers are the longest; in the falcons the 2d; and in the hawks the 4th. This sub-family is not numerous. It contains but 4 genera, *ictinia*, *circus*, *pernia*, and *buteo*. Of the first genus, *ictinia*, there is

but a single species, the Mississippi kite, *I. plumbea*, which in manners, as in aspect and formation, approaches nearest to the true falcons, flying to a great height, where it remains poised or stationary for a considerable length of time, and again cleaving the air with rapidity in pursuit of the large insects, which, as well as birds and reptiles, form its prey. Its back and wings are slate-blue; its head and belly whitish spotted with brown; its irides fine red. The 2d genus, *circus*, or harrier, contains several species: the moor buzzard of Europe, *C. arvensis*; the ringtail, *C. pygargus*; the hen harrier, *C. cyaneus*; the 2 last now generally supposed to be merely varieties of sex and age—both common to Europe, Asia, Africa, and America; the *C. melanoleucus* and *C. acoli* of Europe, and *C. rannivorus*, *C. Maurus*, *C. Swainsonii*, and *C. Vaillantii*, of South Africa. The genus *pernia*, which is distinguished by having the lorum, which surrounds the eye, feathered instead of naked, contains but one species, the honey buzzard, *P. apivorus*; a gross misnomer, by the way, since the bird never touches the honey, although it feeds greedily on the larvae of the wasps and bees whose nests it violates and whose combs it steals, for the purpose of devouring their inmates. It is common to many parts of Europe, and to most oriental countries; but it is unknown in America and Australia. The genus *buteo*, or buzzard proper, embraces several species, of which the common buzzard of Europe is the type. The chief characteristic is a bluish black bill, darkest toward the point. This bird is common in the fur countries of North America and on the plains of the Saskatchewan. The other principal species are the rough-legged buzzard, *B. lagopus*, or hawk, peculiar to North America; the *B. bachei* of Hindostan and the banks of the Ganges; the *B. jackal* and *B. Tachardus*, as also the *buteastes Lessonii*, of South Africa.—It is well remarked by Vigors, that of all the *falconida*, the sub-family of buzzards approaches nearest to the family of the owls, *strigida*. In their slothful habits, their heavy flight, and indeed in their whole appearance, these contiguous groups evince a general resemblance, indicating a corresponding inferiority in the qualities which distinguish the birds of prey. The soft and loose texture of the plumage of both presents a similar affinity, and he adds that the *circus*, or harrier, in particular, furnishes us with a still more intimate point of resemblance. The feathers that cover the cheeks and ears form, as he says, a sort of rounded collar that rises on each side of the face, thus exhibiting a conformity to the disk, or circular erection of the face feathers, so conspicuous in the owls. The buzzards seek their food late in the evening, and in that respect, as in their low, slow-sailing flight just above the tops of the long meadow grass, which they almost fan with their wings, as they seek in it their prey of small quadrupeds, such as field mice and ground squirrels, the inferior reptiles, newts, frogs, lizards,

and snakes, as well as the young of game, both winged and fur-bearing, among which they make sad havoc, all the varieties of this sub-family, except the Mississippi kite, which has, as remarked above, the high-soaring and sweeping flight of the falcons, closely resemble the owls. These birds must on no account be confounded with the American vultures, of which there are 2 species found in the United States, the *cathartes aura*, or turkey buzzard, as it is erroneously called, and the *cathartes atratus*, or carrion crow, as it is misnamed in the South. These birds are pure vultures, having the bare fleshy necks and carrion habits of that most disgusting class of birds, and do not bear the most remote resemblance, in figure, flight, or habits, much less in structural characteristics, to the family of buzzards, with which, through an almost universal blunder of nomenclature, they have been, it is to be feared, irrevocably confounded.

BUZZARD'S BAY, on the S. coast of Massachusetts, 80 miles long by a mean width of 7, contains the harbors of New Bedford, Fair Haven, Rochester, and Wareham. It is sheltered from the ocean, and separated from the Vineyard sound, by the Elizabeth islands.

BYLES, MATTHEW, a minister of Boston, of considerable note in the last century, and of a good deal of local and traditionary interest in his native place to this day, born in 1706, died in 1788. He graduated at Harvard college in 1725, and, embracing the profession of the ministry, was ordained over the church in Hollis street, in Boston, in the year 1733, and obtained a distinguished position among the contemporary clergy. He was learned after the manner of those times, and was more addicted to literary recreations, and had a keener relish of the later humanities, than was then common among the members of his profession. To his reputation for solid learning and theological research he probably owed the degree of doctor of divinity, which was bestowed upon him by the university of Aberdeen in 1765. At that time these distinctions, now so common, were rarely enjoyed by American divines. As a proof of his recognized excellence in polite letters, we may accept the fact that he was the correspondent of some of the chief poets and authors of England. Letters from Pope and Swift were among the relics of his life which were preserved with pious care by his 2 daughters, who lived to an extreme old age. He was himself a votary of the muses in a small way, and a volume of his miscellaneous poems was published in 1744. He gave an early expression, too, to the loyalty which distinguished his character through life, in a poem on the death of George I. and the succession of his son, in 1727, when he was but 21 years of age. He also tempered the bereavement which Governor Balcher had suffered in the loss of his wife in 1734, by such consolation as an elegiac epistle could convey. It is not likely, however, that his name would have been preserved to this time,

had his reputation depended on the merits of his poetical effusions. The cheerful flow of his spirits, and frank gayety of his conversation, seem to have been something out of the common way, and to have left an enduring mark on the memories of that generation. His piety was tinged with no asceticism. He was not one who refrained "when God sent a cheerful hour," and the lively sallies of his sprightly imagination, always kept within the limits of decorum, were restrained by no fear of injuring his personal or clerical dignity. Many of his sayings are still preserved in the popular mind, and probably many more are bestowed upon him to which he had no claim. They do not often rise above the dignity of the *paronomasia* or pun; but they have had the effect of amusing his contemporaries and making his name remembered. That his vivacious temperament, however, was not the effect of specific levity of character, was proved by the personal sacrifices he submitted to rather than be false to his ideas of public duty. During the heat and turmoil of the times preceding the revolution, and the political agitations, of which Boston was then the centre, he maintained his allegiance to the British crown with unfaltering fidelity. However mistaken his ideas on this subject may now be esteemed, no one can doubt the sincerity of his loyalty, nor the high sense of duty under which he acted. After having been happily united with his parish for more than 30 years, his connection with it was dissolved in 1776, he being then 70 years of age, on account of his political opinions, and his utterance of them in the pulpit by prayers for the king and royal family. The next year he was denounced in town meeting as an enemy to the country, and subsequently arrested, held to bail, tried, and condemned to imprisonment in a guard-ship, and to subsequent exile. This sentence was afterward commuted, probably through the respect felt for his spirit and a kindly recollection of his humor, to confinement in his own house. This was carried into effect, and he was detained a prisoner in his house, with a sentinel before the door. This severity was soon relaxed for a while, and afterward renewed. One of the stories told of him is, that wishing to have an errand done at a distance, he asked the sentry to undertake it. The man objected on the ground that he could not leave the door unguarded; on which the doctor volunteered to be his substitute, and accordingly was seen by some one in authority, in powdered wig and cocked hat, with a musket on his shoulder, walking up and down before his house, keeping guard over himself. His release from custody soon followed, on which occasion, alluding to these changes of treatment, he said that he had been "guarded, regarded, and disregarded." Dr. Byles was of the Congregational order which formed the staple of the ecclesiastical establishment of New England. Like most of his faith, remembering the persecutions which had left a hereditary grudge against the church

of England in the minds of the descendants of the Puritans, he had no very friendly feelings toward the establishment, or the offshoots it had sent forth into this country. When King's chapel, yet standing, was built in 1749, Dr. Byles was looking at the lower range of windows, which are small, deep, and nearly square. "I have often heard," said he, "of the *canons* of the church, but I never saw the *port-holes* before." This may be taken as a fair average of the *mote* which have kept their place in the popular memory.—Dr. Byles spent the rest of his days in Boston, well respected even by those who most disapproved his politics, until he died at the age of 83. He retained his loyalty to the last, and bequeathed it to his 2 daughters, who lived in his house, then on the skirts of the town, but now not far from its territorial centre. Probably his Britannic majesty had no more loyal subjects in his dominions than these 2 ladies, who remained living monuments of the feelings, habits, and opinions of the last century until far into this. The survivor of the 2 died as late as 1837.—His son, MATTHEW, who began life as a Congregational minister, and was for several years settled in New London, Conn., became an Episcopalian in 1768, and was for several years rector of Christ's church, Boston. He left Boston with the tories, and died rector of a church in St. John's, in 1814. He was a man of good parts and learning, and received the honorary degree of D. D. from the university of Oxford.

BYNG, GEORGE (VISCOUNT TORRINGTON), an English admiral, born in Wrotham, Kent, Jan. 27, 1683, died in London, Jan. 17, 1788, served in the British navy as midshipman until his 18th year, when he joined the land service. He was in the famous Tangiers regiment, in which, at the age of 21, he became lieutenant. Soon after he again joined the navy, and was severely wounded in a conflict between the *Phoenix* and a Cingalese pirate in the East Indies. He was in Sir George Rooke's expedition, and was made rear-admiral for his services at the battle of Malaga. Having been previously elected member of parliament for Plymouth, he was, in 1721, created Viscount Torrington, and finally raised to the office of first lord of the admiralty.

BYNG, JOHN, British admiral, born 1704, died March 14, 1757, 4th son of the preceding, known to posterity by the misfortunes which closed his life. In 1756, Minorca being menaced by the French, Admiral Byng was appointed commander of a squadron consisting of 10 ships of the line, with which he proceeded to its relief. After arriving in the Mediterranean, finding his equipments inadequate to the service required, he sailed for Gibraltar to get provisions and refit. He now learned that the French had succeeded in landing 19,000 men in Minorca, and had reduced nearly the whole of the island. A council of war agreed that relief would be impossible against the overpowering French fleet. Byng, nevertheless, did endeavor to establish com-

munication with the garrison, which, after an indecisive engagement with the French fleet, proved unsuccessful. For his conduct in this business he was superseded, and on his return home was brought to a court martial. After a long trial he was found guilty of cowardice in the presence of the enemy, and sentenced to be shot, but recommended to mercy. In spite, however, of all done in his favor, his political enemies prevailed, and, March 14, 1757, he was executed at Portsmouth. The unanimous verdict of posterity has acquitted Byng of the charge for which he was condemned, and has imputed to the ministry of the day the infamous crime of sacrificing him for the purpose of diverting popular odium from themselves for their inert conduct of the war. Byng might not have been the worthy successor of Blake or Anson, but his ships were unseaworthy, ill-manned, and worse equipped. His fault, at the most, amounted to excessive caution; but his unpopularity seconded the schemes of intriguers.

BYNKERSHOEK, KORNELIS VAN, a Dutch jurist, born at Middelburg, in Zealand, in 1673, died April 16, 1743. His most important work, entitled *Observationes Juris Romani*, in which he investigates the origin, traces the progress, and delineates the character of the Roman jurisprudence, consists of 8 books, and was published in 2 parts in 1710 and 1738.

BYRD, WILLIAM, colonel, a distinguished citizen of Virginia, born about 1650, died in 1743. He received a liberal education in England, possessed one of the largest libraries in the colonies, and, having a large property, lived in a splendid style, unrivalled in Virginia. He was a member of the council in 1682. In 1699, when about 800 French Protestants arrived in Virginia, flying from persecution in France, he extended to them the most generous assistance. In 1728 he was one of the commissioners for establishing the boundary line between Virginia and North Carolina. He was a member of the royal society, and wrote for the "Philosophical Transactions" an account of a negro boy dappled with white spots.

BYRGIUS, JUSTUS, properly JOSEF BÜRGI, a Swiss inventor, born at Lichtensteig, in Switzerland, Feb. 28, 1552, died at Cassel, Germany, 1638. He had great mechanical ingenuity, with talent for the exact sciences, and, in 1579, was invited to Cassel and attached to the observatory in that city. Having constructed a celestial globe which attracted the attention of Rudolf II., emperor of Germany, and having been invited by that monarch to enter his service, he removed to Vienna in 1604, where he continued to reside until the year preceding his death. He drew up certain tables, which were similar to those afterward published by Napier in his "Canon" of logarithms. Byrgius invented a number of useful instruments, among which were a sector and a pendulum clock; but the invention of this latter is attributed by some to a later period.

BYROM, JOHN, an English poet, born at

Kersall, near Manchester, in 1691, died in the latter city Sept. 28, 1763. His literary reputation depends upon his pastoral of "Colin and Phoebe," which appeared in No. 603 of the "Spectator," beginning, "My time, O ye muses, was happily spent." He was a graduate of Trinity college, Cambridge, a member of the royal society, studied medicine for some time in France, had his property withheld from him by his relatives on contracting a marriage of which they did not approve, and eked out for several years a precarious existence as a short-hand writer, until an estate devolved on him by the death of his brother. His works were published in Manchester in 1773, in 2 vols. 8vo, and a new edition, with an anonymous sketch of his life, appeared at Leeds in 1814.

BYRON, GEORGE GORDON NOEL, lord, an English poet, born in London, Jan. 22, 1788, died at Missolonghi, Greece, April 19, 1824. His father's family traced its origin back to the times of William the Conqueror, being descended from the ancient Norman family of Biron. On his mother's side he was related to the royal family of Scotland. His grandfather, John Byron, was a British admiral. His father, Capt. Byron, who led a life of such dissipation, that he obtained the name of Crazy Jack Byron, died abroad a few years after the birth of his son, after having deserted Byron's mother (Catharine Gordon), whose wealth he had squandered in such a degree as to make it necessary for her to retire with her son to the neighborhood of Aberdeen. He received the first rudiments of education at Aberdeen, and his mother placed him afterward in the school of Dr. Glennie at Dulwich. The death of his great-uncle brought him into possession of the title and the family-seat, Newstead abbey, in the county of Nottingham, and he was placed under the wardship of the earl of Carlisle, and sent under his direction, first in 1801, to Harrow, where the late Sir Robert Peel was among his classmates, and subsequently, in 1805, to Cambridge, where he rebelled against the authority of the university, and where poetry became his chief study. In his 19th year, on leaving Cambridge, he came out with his first public effort, "Hours of Idleness," which was severely handled by the "Edinburgh Review." In 1809 the poet hurled against his adverse critics a caustic satire, which, under the title of "English Bards and Scotch Reviewers," produced a strong sensation at the time, although Byron himself regretted its publication afterward. In 1809 he published "Imitations and Translations from the Ancient and Modern Classics, together with Original Poems." While still at Harrow he fell desperately in love with Miss Chaworth, whose father had been killed by Byron's great-uncle in a duel; but the lady married Mr. Musters, one of her older admirers. This exasperated the poet, and to drown his sorrow he plunged into dissipation. For some time he lived a life of revelry, and delighted in aquatic sports and kindred exercises, but from dancing he was

excluded by his lameness, an infirmity which was to him a constant source of mortification. His health, which was always delicate, suffered from his mode of life; his fortune, too, became deranged, while, above all, his restless disposition allowed him no repose. He took to politics for variety's sake, and having reached his 21st year in 1809 he was entitled to his seat in the house of lords, but his reputation had already sunk to so low an ebb that he found not one single peer ready to introduce him, according to the custom of that assembly, and he had to perform the ceremony himself. He took his seat on the opposition benches, and during his brief presence in the house he made speeches in behalf of the Roman Catholics and of the riotous weavers of Birmingham, which evinced but little talent for parliamentary oratory. He left England in 1809, and in company with his friend Mr. J. C. Hobhouse (now Lord Brough-ton), visited Portugal, Spain, and Greece, and gave a picturesque description of his travels in his "Childe Harold," which appeared in 1812. It was during this journey that he swam across the Hellespont. On his return to England he attracted much attention in society. His high descent, his interesting countenance, his chivalric bearing, his literary fame, the romance of his travels, combined to surround him with a prestige which fascinated the imagination of poetical ladies, who wore ribbons in his honor, while even more vigorous intellects felt disposed to pay homage to his genius. The enthusiasm rose high. His most servile admirers turned their collars down after his fashion, and Byron collars, knots, ties, came into fashion. Yet the whole nature of the man was so totally at war with English ideas of conventionality and propriety, that the conservative and prosaic portion of society kept aloof from him as they would from some fantastic reformer, while church people shunned him as they would a cannibal. In the public mind he was personally identified with his poetical creations, which, indeed, all bore more or less striking resemblance to himself. In rapid succession appeared the "Giaour," the "Bride of Abydos," the "Corsair," "Lara," "Parisina," the "Siege of Corinth," his "Ode to Napoleon," and various other effusions. On Jan. 2, 1815, he married Miss Milbanke Noel, a lady of considerable attainments, but as steadily governed by the dictates of common sense and of propriety, as he was wildly tossed about by the impulses of passion and imagination. He was separated from her in the subsequent year, after she had borne him a daughter, the Ada whom he loved poetically with the glowing devotion of his vehement nature. His separation from his wife produced a great sensation, the odium of which chiefly fell upon Lord Byron, who in 1816 left England for the last time, with the determination of never returning. Involved in pecuniary difficulties, and with a heart bleeding from a thousand imaginary and real wounds, Byron presented at that time

perfect picture of woe and despair. There was something too in his own gloomy reflections which pandered to the morbid cravings of his imagination, and upon his own miseries he seemed at times to gloat with exulting delight. Of a gentle and generous disposition, he took a singular pleasure in attitudinizing as a misanthropist, and while in this strange mood he travelled in his usual lordly manner over the most beautiful parts of the continent. Having spent the summer of 1816 in Switzerland, he afterward took up his abode at Venice, and subsequently at Ravenna, Pisa, and Genoa. While astonishing even the Venetians by his dissipations, he would sometimes withdraw from his companions, and pass a night in study and conversation with the monks in the neighboring cloisters. He lived at Ravenna in the most intimate relations with an Italian *innamorata* of his, the beautiful Countess Guiccioli, whose imaginative nature was attractive to the poet in the same proportion as the prosaic temperament of his wife had been uncongenial. When the father and brother of Guiccioli, the counts Gamba, were expelled from Ravenna for political reasons, Lord Byron took the whole family under his protection, and removed to Pisa, whither the countess followed him. While here he lost his illegitimate daughter Allegra, and his friend Shelley, whose tragic end produced a deep impression upon his mind. In 1822, when the residence at Pisa, too, proved dangerous to the Gambas, he removed to Genoa, where they all remained until July, 1823, when his sympathy with the cause of Greece drew him to that country. In Greece he threw all the energy of his nature into the cause of Grecian liberty. He presented £12,000 to the Greek government, and organized at his own expense a brigade of Suliotes, his intention being to lead an expedition against Lepanto. But he failed to reconcile the jarring elements of Greece, or even to control the unruly disposition of his own soldiery. This want of success preyed upon his mind, and in February he was attacked with an epileptic fit. A few months afterward, while still in feeble health, he ventured out on horseback in a rainy day. Inflammation and death followed. His last words were: "My wife, my child, my sister!—you know all—you must say all." Public mourning was kept for him for 21 days in Greece, and his heart preserved in the mausoleum of Missolonghi. Count Pietro Gamba subsequently escorted his remains to England, where they were buried near Newstead abbey.—After Byron's second departure from England, he published, beside the latter part of *Childe Harold*, the "Prisoner of Chillon," "Manfred," "Beppo," "Mazeppa," "Don Juan," "Marino Falieri," "Sardanapalus," the "Two Foscari," "Cain," "Heaven and Earth," "Werner," the "Island, or Christian and his Comrades," and smaller poems.—Lord Byron was not successful as a dramatist. His plays contain fine declamation, but lack movement and action for the stage. In his poetry we find but little of

keen and true analysis of character. His heroines are creatures of the fancy, and bear greater resemblance to poetical hours than to real women. His heroes are so many Lord Byrons in disguise. This concentration of individuality imparts a singular power and fascination to his characters. The glories of antiquity, great battles for freedom, popular upheavings against tyranny, Goethe and Napoleon, the sombre majesty of the Alps and the terrible splendor of Vesuvius—all things and men, thoughts and associations, grand and colossal—attracted in turns his insatiable imagination. But while his head was glowing with intoxicating imagery, his heart was that of a British peer, and with all his poetical sympathies for humanity and liberty, his pride of birth created a gulf between him and what he considered lower mortals. The poetical effusions of such a strangely blended and picturesque individuality could not but produce a strong impression upon the literary world. Especially to the young and the enthusiastic, there was an irresistible charm in his muse. The magnetism of his presence, the glitter of his rank, the romance of his life, the circumstances of his death, contributed powerfully to awaken interest in his behalf, not only in England, but all over Europe, and especially in Germany, where his morbid tone found many admirers and imitators.—He was succeeded in his title and estate by his cousin, GEORGE ANSON BYRON, born March 8, 1789, who is a rear admiral on the reserve list, lord in waiting to the queen, and vice-president of the royal naval school. Beside his only legitimate child and heiress, Lord Byron left another daughter in Italy, to whom he bequeathed £5,000 on condition of her not marrying an Englishman.—Dowager Lady Byron, Baroness Wentworth (ANNA ISABELLA), born May 17, 1792, was the poet's wife from Jan. 2, 1815, to Jan. 15, 1816, when the separation took place. Lord Byron gave the following description of her during the time of their engagement: "Yesterday a very pretty letter from Annabella, which I answered. What an odd situation and friendship is ours! without one spark of love on either side, and produced by circumstances which in general lead to coldness on one side, and aversion on the other. She is a very superior woman, and very little spoiled, which is strange in an heiress—a girl of 20—a peeress that is to be in her own right—an only child, and a *sacante*, who has always had her own way. She is a poetess, a mathematician, and yet withal very kind, generous, and gentle, with very little pretension. Any other head would be turned with half her acquisitions, and a tenth of her advantages." Lady Byron was the only daughter of Sir Ralph Milbanke Noel, and succeeded, Nov. 12, 1856, to the barony of Wentworth. She is noted for her mental attainments, and for her liberal disposition. In 1856 she sent \$350 to the New England Kansas emigration society, and she figures frequently as a contributor to philanthropic en-



terprises.—Hon. AUGUSTA ADA, only child of Lord and Lady Byron—"Ada, sole daughter of my house and heart"—born Dec. 10, 1815, married, July 8, 1835, William King, earl of Lovelace, died Nov. 27, 1852. Ada inherited the restless disposition of her father; and although of good natural abilities, of a mathematical turn of mind, and excelling particularly as a chess player, she delighted in speculating in railway shares and on the turf. The insolvency of the attorney whom she employed disclosed the circumstances to her husband, who paid all her liabilities; but the unpleasantness which grew out of the discovery preyed upon her mind, and accelerated her death.

BYRON, JOHN, a British admiral, grandfather of Lord Byron, born Nov. 8, 1723, died April 10, 1786. While still very young he accompanied Anson in his voyage of discovery round the world, and was wrecked on the Pacific coast, and conducted by the Indians to Chiloe, where he remained till 1744. He was nicknamed by the sailors "Foul-Weather Jack," on account of the many hardships he had endured. In 1758 he commanded 3 ships of the line, and distinguished himself in the war against France. Subsequently he was employed by George III. on an exploring voyage between the Cape of Good Hope and the southern part of America. After touching at Madeira and the Cape Verd islands, he proceeded to Rio de Janeiro, and then sailed to the southern part of the Atlantic ocean, visited the Falkland islands, where he met Bougainville, who was founding a colony there, and subsequently directed his course northward to the island of Masafuero. Thence, sailing westward, he discovered the isles of Disappointment and King George's island, and directing his course northward, discovered 2 more islands, which he called Danger and Byron's islands. Sailing by the Carolines into the Chinese seas, he passed through the straits of Banca to Batavia, and in May, 1766, arrived in England. In 1769 he was appointed governor of Newfoundland. In 1778 he watched the movements of an armament sent out by France to assist the Americans. In July, 1779, he fought off Grenada an indecisive engagement with the commander of that French armament, Count d'Estaing, and on his return to England, withdrew from active service.

BYSSUS (Gr. *βυσσος*), a Scripture word variously translated fine linen and silk, and supposed by some to have been cotton, and by some the asbestos fabric. There appear to have been 2 quite different qualities of the byssus; one, the finest, used for the habit of the priests, and the other for that of the Levites. As now used, the term is applied to the hairy-like filaments that proceed from the base of the foot of certain molluscous animals, as the pinna and the mussel, and which serve, by being attached at the other extremity to rocks and other substances, to hold the animal in its place, and at the same time to allow it some motion. The name was also applied to a variety of obscure filamentous

plants that are now generally supposed to be the young shoots of different species of fungi.

BYSTROEM, JOHAN NIKLAS, a Swedish sculptor, born Dec. 18, 1783, at Philippsstadt, in the province of Wermeland, excels chiefly in the busts of women and children. In 1815, the king of Sweden, whose statue he had executed, presented him with a house and a studio, and gave him commissions for the statues of a great number of Swedish sovereigns, some of which adorn the public squares of Stockholm, others the royal palace. For the last 30 years he has officiated as professor at the Stockholm academy.

BYTOWN (name changed to OTTAWA in 1854), the capital of Carleton co., Canada West. It is situated on the Ottawa river, and connected by railroad with Prescott, and by the Rideau canal with Kingston. It is divided into an upper and a lower town, and contains a hospital, a nunnery, 4 branch banks, a telegraph company, 7 insurance agencies, printing offices, factories, machine shops, founderies, gas works, and about 50 stores. Five newspapers are published here, and the town is one of the most flourishing in Canada West. The value of assessed property in 1856 was \$3,800,000. A large trade, chiefly in lumber, is carried on by means of the river and canal. At the western extremity of the city are the celebrated Chaudière Falls, spanned by a suspension bridge, which unites Upper with Lower Canada. This town was designated by the home government, in 1858, as the future permanent capital of Canada. Pop. 10,000.

BYZANTINE EMPIRE, called also the Roman empire of the East, the Eastern empire, and the Greek empire. On the death of Theodosius the Great, A. D. 395, the division of the great Roman empire into East and West became permanent. The eastern portion, with Constantinople, the ancient Byzantium, for its capital, was bequeathed to the elder son Arcadius, with whom the line of Byzantine emperors properly commences. The Byzantine empire beginning A. D. 395, ended A. D. 1453, with the Mohammedan conquest of Constantinople. The Eastern empire at its inception consisted of 2 prefectures, namely: 1, the Orient, including 5 dioceses, Oriens (proper), Egypt, Asia, Pontus, and Thrace, and embracing all the Asiatic regions toward the Euphrates and independent Armenia, and the African coast west of Egypt to the great Syrtis; 2, the prefecture of Illyricum, with the two dioceses of Macedonia and Dacia, embracing the countries of the lower Danube, the whole of ancient Macedonia, Hellas, Crete, and the islands of the *Ægean*. In the Crimea, the Byzantines occupied the cities of Theodosia, Chersonesus, near Sebastopol, Eupatoria, and Dandaca. The line of demarcation between the empires of the East and the West was the Danube, from a little above Pesth down to where it receives the Drinus, and a line drawn from the town of Scodra, now Scutari, on the Adriatic, toward the great Syrtis off the coast of Cyrenaica in Africa.

Rufinus was guardian for the young Arcadius; after the overthrow of the former by Stilicho, the minister of the Western empire, the eunuch Eutropius, and later, Gainas, the murderer of Rufinus, succeeded to the premiership. During this period the Goths ravaged Greece. After the death of Gainas in a civil war excited by his ambition, the empire was ruled by the immoral and avaricious wife of Arcadius, Eudoxia, till her death in 404. The young son of Arcadius, Theodosius II., succeeded to the throne in 408. Anthemius administered the government for him until 415, and then his sister, the princess Pulcheria, became regent. Pulcheria assumed the name of Augusta, governed the empire ably, and excluded her brother from any participation in its administration. Under her sway a successful war was carried on against the Persians, and the Western empire was conquered by the Byzantines for Valentinian III., who ceded the province of Western Illyria, including Pannonia, Dalmatia, and Noricum, as a recompense therefor. On the other hand, Thrace and Macedonia were ravaged with impunity by Attila and his Huns, and Pulcheria was obliged to purchase peace by the payment of an annual tribute to the barbarians (448). The *Code of Theodosianus* was drawn up in this reign. After the death of her brother, Pulcheria was called to the throne, 450. She was the first female who ever attained to this dignity. She gave her hand to the sexagenarian senator Marcian, whose prudence and valor averted the attacks of the Huns from his empire. Shelter was given in this reign to the Germans and Sarmatians, who fled before the Huns. Marcian persuaded Attila to wreak his thirst for bloodshed and destruction upon Italy and the West, instead of the East; yet the yearly tribute was raised by Attila from 500 pounds of gold to 2,000, and a piece of territory to the southward of the Danube was ceded to him. Pulcheria died in 453, and Marcian reigned 4 years after her death. Leo I., a Thracian of obscure origin, was appointed emperor (457-474). His expedition against the Vandals was unsuccessful. His coronation by the patriarch of Constantinople is said to be the earliest example of a coronation by the Christian clergy. Leo helped the Romans against the Vandals, and enjoyed great popularity and influence at Rome, which extended even to nominating their rulers. His grandchild, Leo II., aged 8 years, was his successor, but died shortly afterward. Zeno the Isaurian (474-491) succeeded him. Basiliscus drove him away from his capital in 475, and made himself emperor. At this period a fire took place which consumed the library of Constantinople, containing 120,000 manuscripts, the treasures of classical literature. By the help of his fellow-provincials, Zeno regained the throne in 477. In his reign serious and bloody disputes arose about the nature of Christ between the Monophysites and the orthodox. Zeno sided temperately with the latter, and issued the *Henoticon* (482), which re-

stored an outward harmony to the church. He protected his empire against Theodoric and his Goths by presents, and by recommending them to march upon Italy (488). At his death, his widow Ariadne married, and raised to the throne, Anastasius the minister (491-518). A new enemy appeared in the Bulgarians, against whom he protected the peninsula in which Constantinople lies by building across it the celebrated "long walls," 12 miles in length. His favorable disposition toward the Monophysites caused formidable insurrections against his rule. After his death, Justin I., a Thracian, and commander of the body-guard, was nominated emperor by the soldiers (518-527). He adopted his nephew Justinian as his heir. He persecuted the Monophysites, and received the powerful support of the orthodox clergy. Justinian I. succeeded him (527-565). Under the reign of this emperor, the Byzantine empire attained the summit of its glory. The general Belisarius overthrew the empire of the Vandals, and acquired the whole of northern Africa to the Mediterranean, repelled the Persians at the Euphrates, conquered Sardinia, Corsica, and the Balearic isles (538), and defended Constantinople against the Bulgarians. Narses followed up the victories of Belisarius, destroyed the Ostrogothic power in Italy in 555, and restored Italy and Sicily to the sceptre of Byzantium. Italy was governed by a Greek exarch, whose residence was Ravenna, the last capital of the former emperors of the West. Industry flourished, the silk culture was introduced into Europe, civilization progressed, and intellect developed itself, in the long reign of Justinian. The code of civil law, then drawn up, has been ever since a leading authority among the jurists of all civilized nations. The race-course factions of blues, greens, reds, and whites, now acquired a dangerous license. As the emperor sided with the blues, the greens rose in tumult, and were only put down after committing fearful ravages in the capital. The Monophysite quarrel also agitated the empire. In 540 the consular government of the capital was abolished, and about the same period the last schools of the pagan philosophers in Athens were shut up by imperial command. His successor was the unfortunate henpecked Justinus II. (565-578). The Lombards wrested from the Byzantines a large part of Italy (568); Justinus was unsuccessful against the Persians, and the Avars plundered the provinces on the Danube. The Byzantine government in this reign allied itself for the first time with Jesabool, khan of the Turks, beyond the Caspian sea, against their common enemy, the Persians, and received an ambassador from him. Tiberius II. reigned 578-582. He purchased peace from the Avars, and was fortunate against Chosroes I. king of the Persians. His general, Mauritius, who gained his victories for him, was appointed his successor, or the Cæsar. Flavius Tiberius Mauritius reigned 582-602. He reinstated Chosroes II. upon

the throne of Persia, after that potentate had been driven away by his subjects, and made an advantageous peace with him. His army mutinied as he was marching against the Avars, who had increased the tribute payable to them by treaty. The soldiery elected Phocas as his successor, and the "green" faction of the metropolis rose and murdered Mauritius and his sons. Phocas reigned 602-610. The people grew weary of his tyrannical rule, and called to their aid the governor of the imperial prefecture of Africa. The governor sent his son, Heraclius, who took Constantinople, and Phocas was torn in pieces by the multitude. Heraclius was made emperor (610-641). The Persians conquered from him Syria, Palestine, and Asia Minor, and pressed him so hard that he thought of leaving Constantinople forever, and making Carthage his capital. From this step he was dissuaded by the patriarch, and between 622 and 627 he had recovered all, including the holy cross which Siroes, the Persian monarch, had taken as booty from Jerusalem. In 626, the Avars made an unsuccessful attack upon Constantinople. From this time forth we hear nothing more of the wars between the Byzantine empire and the Persian monarchy. The Arabs now appear as the most formidable foe of the Greeks. The Saracens conquered the country bordering on the Euphrates, Syria, Judæa, and all the Byzantine possessions in Africa, 635-641. The Byzantines were weakened by their intestine religious controversy about Monothelitism, or the one will of Christ. In Servia and Croatia a number of Slavonic kingdoms arose, which soon threw off all dependence upon the empire. Constantine III., son of the preceding, died soon; his step-brother, Heracleonas, lost his throne by an insurrection, and was banished. Constantine II. became emperor (642-668). In his reign the empire lost Cyprus and Rhodes (650) to the Saracens, and suffered defeat at the hands of the Lombards in southern Italy. Constantine became the victim of a conspiracy at Syracuse, in Sicily, where he was endeavoring to protect the coasts and islands of the Mediterranean from the Saracens. He published the *Typos*, an edict intended to quiet the controversy between the orthodox and the Monothelites. Pope Martin I. condemned the edict, and was thrown into prison by the eastern emperor. He was succeeded by his son, Constantine IV., Pogonatus (668-686). In 672 the Moslems besieged Constantinople by sea for the space of 5 months. They were forced to retire by the terrible Greek fire, which set their vessels in a blaze. They repeated the attempt seven years in succession, with the like result. On the other hand, the government was compelled to pay tribute to the Bulgarians, who had conquered and founded a kingdom in ancient Moesia. Justinian II., Rhinotmetus, or shorn nose, succeeded his father (685-711). His tyranny brought about an insurrection which cost him his nose and ears and an exile to the

Crimea. During his exile, Leontius and Tiberius III., two generals, reigned. Justinian returned and was assassinated. With him the race of Heraclius became extinct. Philipippus Bardanes, his general, succeeded him; next came Anastasius II., whose troops mutinied as he was leading them against Soliman. He resigned his authority and took refuge in a cloister. Leo III., the Isaurian, reigned 717-741. He beat back the Arabs from Constantinople, but not until after they had ravaged Thrace. The image controversy now became violent. Leo sided with the innovators, and ordered the removal, and afterward the destruction, of all images in the churches. This Iconoclasm roused the island population of the Cyclades to revolt, but Leo repressed the sedition. This position of Leo weakened the Byzantine power in Italy, and the year 728 saw the last of the exarchate of Ravenna. His son Constantine V. succeeded (741-775). He was as much of an Iconoclast as his father, and a more fortunate general. The dislike between him and the monks was mutual. He shut up many of the monasteries and convents, because he alleged that the inmates were sluggards and corrupted the people. He reconquered from the Arabs a part of Syria and Armenia, and destroyed their fleet off Cyprus. In 759 he drove out of the Peloponnese 200,000 Slavonians, and wound up his successful career by victories over the Bulgarians. Leo IV., Ohazar, son of the preceding, reigned 775-780.—The boundaries of the empire were well maintained against numerous foes. Constantine VI. succeeded under the guardianship of his mother Irene. She was an image-worshipper, and assembled the second council of Nice, whereat 370 bishops condemned the Iconoclasts. Eventually she put out her son's eyes (797), and reigned in his stead. She now desired to marry the new emperor of the West, Charlemagne; but this idea of reuniting the Eastern and Western empires was so repugnant to the popular opinion, that an insurrection took place which ended in her dethronement (802). Nicephorus, the high treasurer, was proclaimed emperor. He made a treaty with Charlemagne, which constituted the free territory of Venice as the limit of the 2 empires, became tributary to Haroun al Rashid, and fell in an engagement against the Bulgarians (811). To him succeeded Stauracius and Michael I. They fought unhappily against the Bulgarians. Leo V., the Armenian, a reputable general, succeeded (818). Orunnus, king of the Bulgarians, devastated Thrace, took Adrianople, and laid siege to Constantinople, when a sudden death surprised him. Leo then drove the barbarians back and forced them to a 30 years' truce. He ruled ably, but his dislike to the use of images raised up enemies and cost him his life (820). Michael II., the Stammerer, reigned 820-829. In 824 the Saracens in Spain took away from the empire the island of Crete, and in 827 the Aglabate Saracens seized Sicily. The same reign witnessed the loss of Dalmatia to the

Bulgarians. The public-spirited Theophylus, son of the preceding (829-842), fought long and bravely against the Arabs, but on the whole, fruitlessly. After some reverses he died of grief, leaving Constantinople much strengthened and embellished. He favored the Iconoclasts. His son, Michael III., succeeded (842-867), at first under the guardianship of his mother Theodora. She put an end forever to the Iconoclast controversy, by the restoration of images which was ratified by the third council of Nice (842). In his reign the Russians first appear as enemies of the empire, and the patriarch Photius quarrelled with the pope, Nicholas I., and laid the foundation for the separation of the eastern and western churches. The Manichean and Paulician schismatics were persecuted. After Michael came Basil I., the Macedonian (867-886). He founded the Macedonian dynasty, which lasted until 1056. In 877 he published a compilation of laws, completed by his son, which, under the name of *Basilika*, governed the jurisprudence of the empire. In foreign relations, he beat the Saracens in the East, and crossed the Euphrates triumphantly, protected Dalmatia and Ragusa from the Aglabites, and reestablished the Byzantine power in Apulia and Calabria, which the Saracens had occupied. On the other hand, the Saracens completed the conquest of Sicily by the capture of Syracuse, and ravaged Peloponnesus. Leo VI., the Philosopher, son of the preceding, reigned 886-911. He was an author, and a patron of the arts and sciences; but his reign was disastrous in a military point of view. He called in the aid of the Turks against the Saracens; this showed the former the way into the Byzantine empire, and they captured the island of Samos for themselves. In the same way, Leo called in the aid of the Hungarians against the Bulgarians. The Russians appeared before Constantinople with a large fleet, but effected nothing. The Lombard dukes took from the Byzantines the greater part of what remained to them in lower Italy. The Arabs took Thessalonica, but were driven back by Ducas; Leo then sent an army into Asia, which penetrated into Mesopotamia, and achieved an advantageous peace. After Leo came his son Constantine VII., Porphyrogenitus (912-959), in partnership with Alexander, who soon died. His mother, Zoe, then administered affairs, and protected the empire from the Bulgarians for 7 years. Romanus Lecapenus (919) then obtained a share in the government, and brought along with him his 3 sons. They fought against the Bulgarians, Hungarians, and Russians. In 944 they were obliged to retire and give place to the empress Helen, who governed while her husband Constantine studied. At this period Russian and Hungarian princes came to Constantinople, were baptized, took Byzantine women in marriage, and spread Christianity in their native lands. His son, Romanus II., succeeded (959-963). Crete was recaptured from the Saracens

by Nicephorus Phocas, the emir of Haleb was forced to pay tribute, and the Russians were driven back. Nicephorus I., Phocas, succeeded (963-969), after marrying Theophano, the widow of Romanus. He was defeated in Sicily, but recaptured from the Saracens Syria and Cilicia, and the island of Cyprus. His wife had him murdered, and gave her hand to his successor, the victorious general, Joannes Zimisces (969-976). He fought victoriously against the Arabs in Asia Minor, and against the Russians and Bulgarians in Europe. He extinguished for a time the political independence of the latter. His successor, Basil II., son of Romanus, reigned 976-1025. For 11 years he was occupied in combating 2 rebellious generals, Bardas Phocas and Bardas Sclerus. In 1018 the Bulgarian kingdom was annihilated and Bulgaria became a Greek province, and remained so until 1186. It was he who put out the eyes of 15,000 Bulgarian prisoners and sent them back to their king, who fell down dead at the spectacle. Constantine VIII., his brother, reigned 1025-'28. Then followed in succession Romanus III. (1028-'34), and Michael IV. (1034-'41), both husbands of Zoe, the daughter of Constantine VIII. Michael V. succeeded, and was driven out by the people because he would not marry Zoe. In 1042 Zoe and her sister, Theodora, were joint empresses, until Zoe married Constantine IX. (1042-'54). During this period the Russians, Petchenegs, and Arabs ravaged the empire. The Seljook Turks appeared as formidable enemies, and the Norman adventurers wrested from the Byzantines all their remaining possessions in lower Italy, except the city and territory of Otranto. After Constantine, Theodora again became empress (1054-'56). In 1054 occurred the total separation of the Greek from the Latin church. With Michael VI., Stratioticus (1057), the Macedonian dynasty became extinct. Isaac Comnenus, the first of the Comneni, reigned 1057-'59. To him succeeded Constantine X., Ducas (1059-'67). The Seljook Turks invaded the empire on the east and south, and the Scythian Uzes on the north. The latter were defeated. Romanus IV., Diogenes, reigned 1067-'71. He defeated the Seljooks under Alp Arslan in 8 campaigns in Cilicia and Cappadocia, but in the 4th was taken prisoner. During his absence Michael VII. was proclaimed emperor (1071-'78). The Servians and Seljooks invaded the empire. The latter conquered almost all Asia Minor. Michael resigned, and his successor, Nicephorus III., a Botaniates (1078-'81), had a stormy reign, troubled by numerous rival claimants to the imperial dignity. His general, Alexis Comnenus, dethroned him, and reigned 1081-1118. His administration is remarkable for its relations to the western crusaders. Robert Guiscard, the Norman duke of Calabria, advancing the claims of his relative Michael VII., defeated Alexis in Epirus; but he gained brilliant victories over the Petchenegs and the Kumani. The encroachments of Mohammedan

power, and the dangers that threatened all Christendom therefrom, now drew the attention of western Europe to this complication of affairs. The Turks had invaded Bithynia, and Alexis called the courts of the west to his aid. Pope Urban II. authorized the preaching of the first crusade. The first host of crusaders left an unfavorable impression upon the Byzantines. With the second a treaty was concluded. Alexis was to furnish a number of troops, and the crusaders were to hold the provinces reconquered from the Moslems as fiefs of the empire. Neither party kept faith. Bohemond, prince of Antioch, laid siege to Dyrrachium, but shortly afterward concluded a peace with the emperor. His son, Joannes Comnenus, succeeded him (1118-'48). He fought victoriously against the Seljook Turks in 1120, and reconquered many towns. He defeated the Petchenegs, who had crossed the Danube, and the Hungarians. In 1131 he recaptured lesser Armenia. He was succeeded by his son, Manuel Comnenus (1143-'80). He was victorious over the sultan of Iconium, and over Raymond of Toulouse, the Christian prince of Antioch. In 1147 a new army of crusaders arrived at Constantinople, to the consternation of the inhabitants. In 1142 Manuel conquered the island of Corfu from the king of Sicily, in retaliation for an invasion of Greece by the latter. Between 1180 and 1183, reigned Alexis Comnenus II., son of the preceding, and Andronicus Comnenus. Andronicus was the last of the Comneni. Isaac II., Angelus (1183-'95). In his reign the king of Sicily undertook the conquest of the Byzantine empire, but was eventually beaten back by Isaac. The Bulgarians recovered their independence (1186). He was dethroned by Alexis III. (1195-1203). Isaac's son, Alexis the Young, supplicated the aid of the crusaders, then assembled at Venice, and obtained it in return for a promise to pay 200,000 marks of silver. The crusaders captured Constantinople, July 18, 1203, and restored Isaac, who with his son was put to death the next year. The crusaders again captured the city, April 9, 1204, and a short period of confusion ensued, during which a number of persons were emperors for a few months or days. The Latin empire of Romania was established (1204-'61), and Count Baldwin of Flanders elected first emperor. The European possessions of the empire were divided into 4 parts: 1. The imperial domain, including one-fourth part of the city of Constantinople (the other 3 parts being divided between the French and Venetians). Thrace, some castles on the Asiatic coast, the islands at the mouth of the Hellespont, and the suzerainty over the feudal dependencies of the empire. 2. The kingdom of Thessalonica was carved out for Boniface, marquis of Montferrat, which included Macedonia and a part of Greece. 3. The republic of St. Mark obtained the coast lands of the Adriatic and the Ægean, a portion of the Morea, many of the Cyclades and Sporades, the islands of

Crete and Negropont, and the territory of Gallipoli on the Thracian Chersonese. 4. Many other fiefs were given to French knights, of which the principal were the duchy of Athens and Bœotia, and the principality of Achaia and the Morea. The Greek empire still survived in Asia Minor. Theodore Lascaris, who had been elected emperor by the senate in Constantinople, established his capital at Nicæa, whence the Greek empire of Nicæa received its name. It consisted of Bithynia, Mysia, Ionia, and part of Lydia. On the south-eastern shores of the Black sea, from Sinope to the river Phasis, the Grand Comnenian empire of Trebizond arose. The Comnenian princes, Alexis and David, declared their independence at the fall of the old Byzantine empire, and one of their successors assumed the imperial title. In Epirus and Ætolia Theodore Angelus established a Greek principality. Returning to the history of the principal fragments of the Byzantine empire, we find that the Greeks called in the aid of Joannes, king of the Bulgarians, who defeated Baldwin and took him prisoner. Henry, brother of Baldwin, succeeded him (1206-'16). He fought with equal success against Lascaris, emperor of Nicæa, and brought the king of the Bulgarians to terms. He gave honors and offices of trust to the Byzantines, and protected them against the oppressions of the Latin clergy. Peter de Courtenay succeeded him (1216-'21). He was captured by Theodore, independent prince of Epirus, in a vain attempt to take Dyrrachium for the Venetians. His younger son, Robert, succeeded him (1231-'38). During his reign, Joannes Vatzatzes, the Greek emperor of Nicæa, and Theodore, the prince of Epirus, reduced the territory of the Latin emperors of Romania almost to the peninsula on which Constantinople stands. John de Brienne, titular king of Jerusalem, next took the reins of power as regent for Baldwin II. (1223-'37). The Bulgarians made an alliance with the emperor of Nicæa and threatened the existence of the Latin empire. John de Brienne saved Constantinople, and the allies turned their arms against each other. Baldwin II. then reigned unaided (1237-'61). He implored men, arms, and money of the potentates and nations of the West, but they made no adequate response to his entreaties. The consequence was that Michael Palæologus, emperor of Nicæa, with the help of the Genoese navy, which was driven to the Greek alliance by hatred of Venice, obtained possession of Constantinople, July 25, 1261. The Genoese were rewarded by liberal mercantile privileges. The Latin empire of Romania now vanished, although many of the Latin principalities, such as the duchy of Athens, survived until the final downfall of the restored Byzantine empire in the 15th century. With Michael Palæologus (1261-'82) commenced the dynasty of the Palæologi, which endured until the Turkish conquest. By his endeavors to reunite the

Greek and Latin churches he gained the hatred of his clergy and people. Andronicus II., his son, succeeded (1282-1288), and immediately restored the Greek ritual. To defend his empire against the Turks, he took into pay a body of Catalan troops (1308); the Catalans beat back the enemy, and then began to pillage Greece and settle down upon estates got and held by the right of the sword. He abdicated in favor of his grandson, Andronicus III. (1282-141). He fought unsuccessfully against the Turks, who took Nicaea and Nicomedia in 1389, and plundered the coasts of Europe, and made a barren alliance with the pope, the king of France, and other western powers, against the Moslems. His son, Joannes V., succeeded him, and reigned 1341-91. It cost him a civil war of 10 years to rid himself of his guardian, Joannes Cantacuzenus. During this war the Turks first acquired territory in Europe. Gallipolis was seized by them in 1357; in 1361, Sultan Amurath took Adrianople, and made it his residence. Joannes appealed to the pope to aid him in his extremity, offering to reunite the eastern with the western church, but to no purpose. In 1378, Amurath conquered Macedonia and part of Albania, when Joannes signed a treaty, acknowledging himself to be the vassal of the sultan, and covenanting to pay tribute. Philadelphia, the last possession of the Byzantines in Asia, capitulated to Bajazet, successor to Amurath. When the sultan ordered that a Mohammedan *cadi* should reside in the ancient metropolis of Christendom, and that the emperor's son should accompany him in his wars, Joannes Palaeologus died of a broken heart. Manuel, son of the preceding, escaped from the court of Sultan Bajazet, where he was a hostage, at the news of his father's death, and was proclaimed emperor (1391-1425). Bajazet laid siege to Constantinople, but raised it to levy war upon the Hungarians, returned in 1397, but made peace through fear of another western crusade. In 1400 he made a third attempt upon the metropolis, but the invasion of Tamerlane, which threatened the existence of the Turkish empire, recalled Bajazet into Asia, and saved the Byzantine empire for a space. Manuel recovered some lost ground while the sons of Bajazet were quarrelling. Yet, in 1423, Sultan Amurath II. appeared before the walls of Constantinople, and employed cannon, for the first time in eastern wars. Another fraternal quarrel on the part of the Turks brought about the return of peace. Joannes VI., son of Manuel, succeeded (1425-48). Seeing that he was unable to defend his empire from the Turks, he endeavored to effect a reconciliation between the eastern and western churches, on the condition of a new western crusade in his favor. For this purpose he was present at the council of Ferrara, which was presided over by Pope Eugenius IV. The reunion was solemnly proclaimed there, but it did not take effect in the East. In 1444 Sultan Amurath reduced the Byzantine empire to the city and suburbs of

Constantinople, and out of generosity allowed the emperor to end his days in peace, on condition of paying tribute. His brother, Constantine XI. (1448-58), was the last of the Byzantine emperors. He made a last appeal to the princes of the West, and to the prince of Georgia, whose daughter he had married. The western potentates were too much wrapped up in their narrow jealousies of each other to feel acutely upon any question which had only a general interest for them. Giovanni Giustiniani, a Genoese nobleman, with 2,000 Genoese and Venetian auxiliaries, and 4 Genoese ships of war, were the sole results of Constantine's appeal. The total garrison did not exceed 8,000 soldiers. The Turks appeared before the walls of Constantinople on April 6, 1453, with an army of 400,000 Moslems. They were not able to break the chain which protected the entrance of the harbor, but Sultan Mohammed II. had his fleet carried on rollers 10 miles overland, and launched into the inner gulf. Both sides fought bravely, but after a siege of 58 days, Constantinople fell on May 29, 1453. Constantine died heroically in the breach. The city was delivered over to rapine, and the bulk of the inhabitants sold into slavery. The brothers of Constantine, Demetrius and Thomas, held out for a short season in the Morea, which was taken by Mohammed II. in 1458. The rest of the Latin principalities, which had acknowledged a loose feudal subjection to the Byzantine emperor, had all fallen by 1460. The island of Lesbos was taken in 1462. David, the last of the Comneni, and the last emperor of Trebizond, submitted, 1461. Thus perished an empire which had kept the light of letters and civilization burning, though attacked by a hundred foes, through all the night of the dark ages, when western Europe, including even Italy, lay prostrate at the feet of barbarian conquerors, and was a howling waste, in which the law of the strongest alone prevailed.—The Byzantine empire was divided for administrative purposes into prefectures, dioceses, and themes or provinces. The power of the emperor was absolute. The emperor claimed to inherit the rights of the Roman emperors, and to be the lawful ruler of the West. He was anointed and crowned by the patriarchs of Constantinople. As has been seen, the influence of women, favorites, and the clergy, was great. The ceremonial of the Byzantine court was carefully elaborated, and rigidly maintained. The consulate became extinct in the 6th century, and the senate and the last forms of municipal self-government in the 10th. The emperor was advised by a council of state, in which none found admittance except at his pleasure. The functionaries of government were divided into many classes, as at present in Russia, and each class had distinctive privileges. Eunuchs enjoyed high rank, and to them was intrusted the immediate attendance upon the holy person of the emperor. The *major domus* of the East was called first *curtopalates*, and afterward *protovestiarius*. The

body-guard of the emperors began in the 10th century to be composed of Germans, Saxons, and Northmen. The latter were called Varings. The commandant of the fleet was the *megas dux*.—The original sources of Byzantine history are the Byzantine historians themselves, who wrote in corrupt or later Greek. Only a few of these have been translated into any of the modern languages. Of the authorities in the modern tongues, we cite Le Beau, *Histoire du Bas Empire*, also translated into German; Zinkeisen, *Geschichte Griechenlands*; Fallmeayer, *Geschichte des Kaiserthums Traperunt*; Gibbon's "Decline and Fall of the Roman Empire;" Finley's "History of Greece and Byzantium" (London, 1854), the most recent and best authority in the English language on this period; and for the Latin settlement in the East, Buchon's *Histoire des conquêtes et de l'établissement des Français dans les états de l'ancienne Grèce* (Paris, 1846). Du Cange's work in Latin, *Historia Byzantina* (Paris, 1680), was, before Gibbon's work, the only authority generally consulted. An interesting new work on the Byzantine empire, is Muralt's *Essai de chronographie Byzantine* (St. Petersburg, 1855).

BYZANTINE HISTORIANS, a series of little read but important lower Greek authors, who wrote between A. D. 893 and 1453, the era of the capture of Constantinople by the Turks. Of these, Procopius is the best known, and is the only one who has been translated into English. Anna Comnena, daughter of the emperor Alexis I., who wrote a history of her father's reign in 15 books, is also well known. A collection of the most important of them was made and published at the expense of Louis XIV., in 36 volumes (Paris, 1648-1711). The title of this work is *Corpus Scriptorum Historie Byzantine*. The Greek text is accompanied with a Latin translation and notes. The editors of this work were the Jesuits Labbé and Maltrait, Pétau and Poussines, the Dominicans Goar and Combefis, Prof. Fabrotti, Charles du Cange, Allacci, the librarian of the Vatican, Banduri, librarian at Florence, Boivin, the royal librarian at Paris, and Bouilliaud, a mathematician. Another edition, with additions, was published at Venice in 23 volumes, 1729-'83. Some, not included in either collection, have been published separately since. Niebuhr entertained a high opinion of the value of the Byzantine historians in a general history of mankind, and projected a new edition of them, which was commenced in 1823, under the title *Corpus Scriptorum Historie Byzantine, Editio emendatio et copiosior* (Bonn). This edition has been in progress of publication continuously since that time, and is not yet completed. Bekker, the two Dindorfs, Schopen, Meinecke, and Lachmann, are the principal editors.

BYZANTIUM, a city on the shores of the Bosphorus, founded by ancient Greek colonists on a part of the site of the modern Constantinople. It was originally settled by a band of

Megarian colonists, 658 B. C., but it was destroyed by Otanes, the Persian satrap, in the time of Darius Hystaspes. After the defeat of the Persians at Plataea (479 B. C.), Pausanias, the general of the confederate Greeks, re-colonized it with a body of Dorians and Ionians. From this heterogeneous constitution endless disputes arose, and Spartan and Athenian parties always existed within the walls. The fine harbor and advantageous position soon made it of great commercial importance. It obtained possession of the corn traffic between the shores of the Euxine and Greece and Egypt, and its fisheries were so abundant as to procure for the harbor of Byzantium the name of the Golden Horn. It remained under the regency of the Lacedæmonians until Cimon captured it for the Athenians. It soon returned to its original allegiance. Alcibiades, the Athenian, got possession of it by the aid of the Athenian party within the city, 408 B. C.; but it was retaken by Lysander, the Lacedæmonian, 405. Xenophon, with the remnant of his 10,000 men, passed through it on his way homeward. In 390 B. C. Thrasylbulus expelled the pro-Lacedæmonian oligarchy, and established the power of the democracy. Byzantium put itself at the head of a league consisting of Rhodes, Chios, Coa, and Caria, with a view of throwing off the Athenian supremacy. This they effected, and Byzantium remained for a space entirely independent. As the commercial importance of Athens declined, that of Byzantium was augmented. When, however, Philip of Macedon besieged it, it returned to its Athenian allegiance, and called upon the parent city for succor. Owing to the anti-Macedonian eloquence of Demosthenes, the aid was granted. Phocion, the Athenian, compelled Philip to raise the siege. The grateful Byzantines erected a monument in honor of the event, and granted the rights of Byzantine citizenship to the Athenians. During the progress of this siege, the city was saved from capture by surprise, by a flash of light which illumined the northern horizon and betrayed the proximity of the besiegers. A crescent was stamped on the Byzantine coins in honor of this miraculous event, and when the Turks took Constantinople in the 15th century, they adopted this municipal symbol as their own national device. In the reign of Alexander the Great, Byzantium acknowledged the Macedonian supremacy. In the dissensions of Alexander's generals, Byzantium sided with Antigonus against Polysperchon, and with Lysimachus against Seleucus. It was at this period much exposed to the incursions of the Thracians, Scythians, and other barbarians on the land side. The Gauls made it pay heavy tribute, which caused the citizens to retaliate upon the commerce of the world, by levying a toll upon all vessels passing through the Bosphorus. This tax brought them into a war with the island of Rhodes, 221 B. C. Attalus, king of Pergamus, sided with the Byzantines; Prusias, king of Bithynia, with the Rhodians. The latter were successful, and commerce remained unbur-

dened. Ancient writers give a very bad character to the Byzantines. Their morals were not above the standard of other large seaport towns. They preferred the sound of a flute to that of a war trumpet, and when Philip of Macedon was besieging the place, the Byzantine general, Leo, found that the only means of maintaining the courage of the Byzantines, and holding them to their duty, was to plant a range of cook-shops along the ramparts. Byzantium was fortunate in allying itself with Rome from the first against the Macedonian kings, Antiochus of Syria, and Mithridates of Pontus. In acknowledgment of its fidelity, the Romans allowed it to remain a free confederate city. In consequence of some popular disturbances, the emperor Vespasian deprived the citizens of their civic liberties and sent them a governor. On being remonstrated with, he answered that the citizens had "forgotten how to be free." In the civil war between Pescennius Niger and Severus, Byzantium sided with the losing claimant. The emperor Severus besieged the town, which defended itself for 3 years, and then capitulated from famine. The chief citizens were put to death and the massive walls razed to the ground. Subsequently he repented of this severity, embellished the town, and gave it the name of Augusta Antonina, in honor of his son Antoninus. Caracalla restored some of its former civic priv-

ileges, but Gallienus gave it up to pillage, and massacred many of the citizens. The inhabitants repelled the invading Goths in the time of Claudius II. Byzantium was the last refuge of Licinius in his war with Constantine. After the surrender of the city to Constantine, he resolved to build a new city on the site of the old, and make it the capital of the Roman empire. Thus Byzantium merged into Constantinople, A. D. 330. Dionysius and others give the old city a circumference of 40 stadia.

BZOVIVS, ABRAHAM (Pol. *Bzowski*), a Polish scholar and divine, born at Proszowice, near Miechow, in 1567, died Jan. 31, 1637, in Rome, where, at the request of Pope Paul V., he spent several years of the latter part of his life in the Vatican, as librarian of the *Virginio dei Ursini*, and actively engaged in literary pursuits. He was a member of the order of the Dominicans, one of the most voluminous writers of his age, gained for himself a high reputation as professor of philosophy and theology at Milan and Bologna, and crowned the labors of his life by continuing the celebrated ecclesiastical annals of Caesar Baronius, who had left them off at the year 1198, and completed only 12 volumes. Bzovius carried them to the year 1582, in 9 volumes, from the 18th to the 21st volume, which were published first in Bologna and afterward in Rome.

## C

(The third letter in the English alphabet, as it is in the Latin, and in those of all the modern European languages. Its form is derived by Scaliger from the Greek *kappa* ( $\kappa$ ), by dropping the upright stem, and rounding the  $\angle$  into C. Suidas calls it the Roman *kappa*, and Montfaucon, in his *Palaographia*, gives several forms of the  $\kappa$  which approach nearly to c. Others derive it from the Hebrew *caph* ( $\kappa$ ), which has nearly the same form, but is inverted, since the Hebrews and Latins read in opposite directions. Others, from its position in the alphabet, derive it from the Hebrew *gimel* ( $\gamma$ ), and make its affinities with the Coptic *gamma*, the Ethiopic *gemel*, and the Russian *glaghol*. In the early Latin language C held the place which is now occupied by G, as appears from the inscriptions on the Duilian column raised in the Roman forum about 200 B. C., in which we find *ma-cistratus* for *magistratus*, *lectioes* for *legiones*, *pucando* for *pugnando*, and *exscoient* for *effugient*. Thus Ausonius says, *gamma vice functa prius C*. The O also sometimes represented the Greek *kappa*, since in the same inscriptions *Cartaciniensis* occurs for *Karthaginiensis*; but this function was more frequently fulfilled by the letters *qu*; thus the Greek *kai*, *καί*, *καί*, became the Roman *que*, *querquerus*, and *querquedula*. The tendency of the western languages has been to soften the oriental articulation, and the *gamma* or C, after being softened by

being brought forward in the mouth to the front palate, and becoming K phonetically, superseded the *qu* which had been common in old Latin words. The Latins made no further phonetic change of C, always during the most flourishing period of their literature pronouncing it like a *kappa*. If they had given the sibilant sound of C in the enunciation of the word Cicero, the Greeks in adopting the word would have written it with a *sigma*. Modern languages, however, have carried the process on further. The English has softened the aspirated C (ch) in *church*, *chime*, *chivalry*, and the French still more in *chevalerie*, *chemin*; while the unaspirated C has become a pure sibilant, as in *circle*, *cent*, *cycle*. Thus the English *teach* comes from the Latin *docceo*, and the English *please* and the French *plaisir* from the Latin *placoo*. Some words, however, have not followed this phonetic change from the original pronunciation. Thus the modern Scottish kirk still embalms the sound of the old English church. Kindle and candle show that the pronunciation of cinder is perverted, and the patois of north-western France still preserves the hard sound of C in *chemin*, and so links it to the English *come*. But though the Latins did not soften the C to a sibilant, they did worse. Having aspirated it into K, they next dropped it, preserving only the aspirate to mark the hiatus, as *tracto*, *traho*; *kerdona*, *herdona*; and this same process is noticeable in the cog-



nate languages; thus *collum* (Lat.), *Hals* (Ger.), *halter* (Eng.). In French the phonetic softening of the C is traceable in the word *Karolus*, till the 9th century, then *Carolus*, and afterward *Charles*; and the comparatively modern use of the cedilla records the further progress of the change. C is also interchanged with some other letters beside the Q and K with which it is cognate; as with P in *pepo*, *coquo*, cook; *columba*, *palumba*; while *prox(imus)* has supplanted *prope*, but not *prope* and *propius*. The phenomenon of the disappearance of C occurs in *sacramentum* (Lat.), *serment* (Fr.); *lacrima* (Lat.), *larme* (Fr.); and in many other cases for purposes of euphony. As a numeral, C signifies 100, CC 200, and so on. It was used among the Latins to stand for Cæsar, Caius, Cassius, *centum*, and *condemno*; and on account of the last use it is called *litera tristis* by Cicero. CC stood for *calumnia causa* or *concilium cepit*; *cons.* for *consules*; Cl. for Claudius; C.V. for *Centum Viri*; and C.R. for *Civis Romanus*. An Italian C stands for *canto*. In French, a single C stamped on money marks it as the issue of the mint of Caen, and CC as the issue of the mint of Besançon.—C, in music, the name of one of the notes of the scale. It is the tone with which the so-called natural scale begins, and was designated by Guido *ut*, a name subsequently changed to *do* by the Italians. C is considered the key note, and its pitch is regulated by tuning forks. It is also a character used for the signification of time.

CAABA, or KAABA, properly a quadrangular structure, applied particularly to a celebrated temple at Mecca. According to Mussulman tradition, the first Caaba was built by the angels on the model of the pavilion which surrounds the throne of the Most High; the second was built by Adam, with whom it was removed to the skies, where it still exists in a right line above the Caaba of Mecca; the third was built by Seth, but perished in the deluge; the fourth, which now exists, was built by Abraham and Ishmael. The name is specially given to a small cubical oratory in the temple in the centre of a large space surrounded by galleries. This is the point toward which the prayers of all Mussulmans are directed. On one of its sides is wrought the famous oval black stone, believed to be one of the precious stones of paradise, and to have been brought by the angel Gabriel to Abraham, when he was constructing the Caaba. At first of a dazzling whiteness, it has grieved and wept so long for the sins of the human race that it became gradually opaque, and at length absolutely black. It is an object of profound veneration to the pilgrims who resort to the sacred city. This inner Caaba is surrounded with a veil of black silk, and is opened but 3 times a year. The temple of the Caaba is older than the time of Mohammed, previous to whom it was the Arab pantheon, and contained all the idols of the nation.

CABAL (Fr. *cabale*), a word signifying club or association, imported into the English lan-

guage after the restoration. The ministers of Charles II. of England, whose names were Clifford, Ashley, Buckingham, Arlington, and Lauderdale, were called by some opposition wit the cabal ministry, as the initials of their names, ranged in the order given above, form the word cabal.

CABALA. This word is of Hebrew origin, and signifies reception, and in Hebrew literature it designates the religious and philosophical doctrines which the Jews say Moses received by divine communication on Mount Sinai, and which he afterward delivered traditionally to Joshua, and Joshua handed down in the same manner to the 70 elders. This system of doctrines was also called Masora (tradition), because it was given or transferred. It was not allowed to be written, that is, in the form of direct statement. It is supposed, however, to be enigmatically embodied in all the Old Testament or Jewish scriptures, especially in the Pentateuch. So highly do some comparatively modern writers (as Henry More) value the traditional science, which is supposed to underlie the Pentateuch, that they pronounce the latter a foolish and melancholy conceit, unless there be some key by which a higher but secret meaning may be extracted from it. Cabala is also used to designate a period in the progressive development of Jewish literature, which commenced about A. D. 800; also to designate a sort of divining by means of passages of Scripture, but this is a corruption of the term, and constitutes no part of the Jewish idea of the Cabala.

CABALLERO, FERMIN AGOSTO, a Spanish statesman, born July 7, 1800, at Barajas de Melo, in the province of Cuenca. He first settled as an advocate in Madrid, but on the subversion of the constitution in 1824, he retired to Estremadura until the death of Ferdinand VII. in 1833, after which he edited the *Boletín del Comercio*, which was suppressed, but reappeared under the new name of the *Eco del Comercio*. He was elected to the cortes, where he was a leading member of the opposition to the ministry of Martinez de la Rosa. Soon after he was a supporter of Mendizabal, and favored all the innovations attempted by that minister, especially the suppression of convents. He was a member of the constitutional convention in 1837.

CABANIS, PIERRE JEAN GEORGE, a French physician and philosopher, born at Cosnac, in the department of Charente Inférieure, June 6, 1757, died at Rueil, near Paris, May 6, 1808. He was the son of the barrister Jean Baptiste Cabanis de Salagnac, who married a very rich lady, and became an eminent agriculturist. Having left the bar to superintend the culture of his wife's extensive domains, the father became intimate with Turgot, the economist, who was then the administrator of Limoges, and afterward became the celebrated minister of Louis XVI. The son, though very intelligent, was a wayward student, and made but little progress in his early studies at Brives. At the

age of 14 his father took him to Paris, where he employed 2 years in reading the works of ancient philosophers, the writings of the fathers of the church, and those of modern philosophers, such as Rousseau and Voltaire. Locke was a particular favorite with the young philosopher. His father wished him to return home at the end of 2 years, but Massaki, the prince-bishop of Wilna, then in Paris consulting French philosophers on the best method of regenerating Poland, took an interest in young Cabanis, and engaged him as his secretary. After remaining 2 years in Poland, Cabanis returned to Paris, where Turgot introduced him to Mme. Helvétius and her brilliant circle of society at Auteuil, and where he afterward became acquainted with D'Alembert, Diderot, Condillac, Franklin, Jefferson, Baron d'Holbach, and other men of eminence. He also became intimate with Boucher the poet, author of the *Poème des noirs*, and undertook to translate Homer into French verse. His father wished him to choose a profession, and his health being very delicate, he was anxious to study medicine. He became the pupil of Dubreuil, and followed his new studies with the same impetuosity he had always manifested in his favorite pursuits. In 1783 he received his degree of doctor of medicine. When the revolution broke out in 1789, Cabanis espoused the popular cause. He became the physician and the friend of Mirabeau. In 1791 he published an account of the illness and decease of the great orator. At a later period, during the stormy wranglings of the convention, Condorcet obtained privately from Cabanis, his friend, the poison he intended to take, in order to avoid a more violent death. He also expressed a desire that Cabanis would collect his writings, and superintend their publication. Cabanis married Charlotte Grunchy, the sister of Field Marshal Grunchy, and of Mme. Condorcet. In 1789 Cabanis published his "Observations on Hospitals." In the year III. of the republic (1795) he was appointed professor of hygiene at the central school, and professor of clinical instruction at the medical school. He had much to do with the reorganization of medical instruction in the schools of Paris, Montpellier, and Strasbourg. In 1797 he published his reports to the council of 500, on the organization of medical colleges, and a paper on the "Degree of Certainty in Medical Science." He also published a paper on the "Revolutions of Medical Science." In these papers he developed the first germs of his system. "The active principle of life and movement in animated bodies," says Cabanis, "which Stahl calls the 'soul,' is one, but it acts diversely in the organs according to differences of structure and of function. It digests in the stomach, breathes in the lungs, secretes bile in the liver, and thinks in the brain." The "vital principle" or animating force of Stahl, adopted as the leading doctrine of medical science by the Montpellier school, had much influence on the mind of Cabanis, although his sys-

tem led to opposite conclusions. "Medical and moral science," says Cabanis, "have a common basis in the science of the physical organism of human nature. We must look to physiology for the solution of all their problems, and the common basis of all their truths. All ideas, sentiments, and passions, goodness and virtue, are derived from physical sensation. The source of all morals is in the human organization or physical organism, on which depend our faculties and modes of feeling." Condillac had explained all the actions of the soul by sensation; Cabanis wished to complete this system of philosophy by investigating and explaining the origin and nature of sensation. "All sensibility resides in the nerves, and therefore," says Cabanis, "all the moral affections and intellectual faculties reside in the nerves. Impressions are received on the peripheral nerves and carried to the nervous centres, where they excite thought, feeling, and reaction in the organism. Distinctions between physical and moral nature are therefore vain, the moral faculties having their origin in the physical." Such was the reasoning of Cabanis.—Being a friend of Sieyès, he was noticed by Napoleon Bonaparte on his return from Egypt, and on the day after the 18th Brumaire, Cabanis, in the name and on behalf of the legislative assembly, wrote the proclamation recommending the French nation to accept the revolution which had just been accomplished. Under the consulate he was named a member of the senate; but, disappointed by the reactionary policy of Napoleon, he withdrew from public life, and devoted his attention exclusively to science. Being a member of the institute of France, he had already read several portions of his work, "On the Relations between the Physical and Moral Nature of Man," to that learned body; and, in 1802 he published the work complete in 2 vols. 8vo, under the title of *Rapports du physique et du moral de l'homme*. The style being clear and brilliant, and the ideas consonant with the prevailing notions of the day, the book had great success in France, when first published; but the philosophy which it attempts to establish on the basis of the physical organism, and the identity of nervous matter with sensation and the vital principle, has lost its hold on the public mind. Cabanis himself, before he died, had modified his views on many points; and in a private letter to a friend, published by Bérard of Montpellier, 24 years later, wrote an excellent essay on "Primary Causes," in which he states that it is impossible for human reason to conceive the possibility of the existence of the universe, without the idea of intelligence as a first cause in the government of events.

CABARRUS, or CABARRAS, a south-western county of North Carolina; area, 850 sq. m.; pop. in 1850, 8,747, of whom 1,685 were slaves. The surface is uneven, and in some places mountainous; the soil of moderate, but not uniform fertility. It is watered by branches of Rocky river, an affluent of the Yadkin. It

produced gold in the early part of the present century; but its wealth now is chiefly in live stock, grain, cotton, and tobacco. In 1850 it produced 418,320 bushels of Indian corn, 76,946 of wheat, 2,344 bales of cotton, and 408 lbs. of tobacco. It had 14 corn and flour mills, 8 saw mills, 1 woollen and 1 cotton factory, 7 tanneries, 21 churches, 8 academies, and 2,619 pupils attending public schools. Value of real estate in 1856, \$694,898. The county was formed in 1792, and named in honor of Stephen Cabarrus, speaker of the house of commons of North Carolina. Capital, Concord.

**CABBAGE**, a plant belonging to the botanical order *crucifera*, and genus *brassica*, the order comprehending also the scurvy-grass, pepper-grass, mustard, cress, radish, and turnip, and the genus including also the cauliflower, broccoli, borecole or sprouts, rape, colza, savoy, and kohl-rabi. The *brassica oleracea*, from which all the forms of cabbage spring, is found growing wild on rocky shores and cliffs in England, with no appearance of a head. The cultivated cabbage is considered by some a monstrosity; but its varieties are well marked, distinct, and easily perpetuated, where care is taken to secure such conditions as will continue their exact habits. The cabbage is a biennial; the seed being sown produces a full-grown plant the first season, and the next season sends out shoots  $1\frac{1}{2}$  to 2 feet long, which bear small globular seeds in a great number of pods. The whole plant then perishes. The large, solid heads of cabbage, now so familiar to all, were produced from the wild plant by gradual improvement in soils, manures, and cultivation. To repeat them annually it is necessary to observe 2 points: 1. None but those heads presenting the best type of the variety should be saved for seed; they must be taken up with the roots before frost sets in, the useless outside leaves removed, and set in a cool, dark cellar, with the roots imbedded in soil, and packed as closely as possible. In spring they are set out about  $2 \times 2\frac{1}{2}$  feet apart in good garden soil, and no seed saved except from the most vigorous stalks. 2. They must not produce seeds near other plants seeding at the same time, which belong to the same tribe, such as cauliflower, turnip, broccoli, &c., as they will mix through their flowers, the seed producing mongrel varieties. Much disappointment is experienced from using seeds carelessly produced by seed-growers to sell. There are many very valuable varieties of cabbage, some suited to particular localities. For early use, early York is an old favorite, some preferring the early flat Battersea. Coming next in succession, a new cabbage, Winningstadt, is excellent, heads compact, growth rapid. About New York, the late Bergen, flat Dutch, and best varieties of drumhead cabbages are preferred for late sorts. Three crops are secured in a season; seeds of early and late sorts are sown in a moderate hot bed in March, for the latitude of New York city, kept slightly moistened, with plenty of air at all times when the temperature is not too

low. The plants are dusted with dry wood ashes, pulverized lime, or a little Scotch snuff, to keep off the fly—which is a small black insect, a great pest—thinned to an inch apart, and kept free from weeds. When the beds outside are dry and warm enough, the plants are removed during a cloudy day, or in the afternoon, and the early sorts set with a dibble, 14 to 18 inches, the later ones 20 to 22 inches apart each way, watered, and allowed to take root before disturbing the soil about them. If the weather continues dry, the plants should be watered 2 or 3 evenings in succession. This planting gives the earliest cabbages, and summer cabbages, which come between the early and late crops. For a late crop the seeds are sown in an open bed, thinly, in drills 6 to 9 inches apart, in May, and transplanted from June 10 to July 1, in straight rows, 22 to 27 inches asunder each way. The cabbage is a rank feeder, and an exhaustive crop. The soil should be a deep, rich loam, not only containing plenty of vegetable matter, but a full supply of potash, soda, and lime. A dressing of common salt, at the rate of 10 bushels per acre, will not only benefit the cabbage crop, but kill grubs and worms, which destroy the young plants rapidly. Coarse manures should not be applied the same season the cabbage crop is to be grown. Hogpen manure must not come near the cabbage crop, as it disfigures the roots, and destroys the plant. Composts of muck, wood ashes, lime, salt, and common yard manures, well decomposed, may be used in large quantities if well incorporated with the soil. Guano, dug deeply under, is good in all but very light sandy and gravelly soils. A first-rate superphosphate of lime, with  $\frac{1}{4}$  its weight of guano mixed with it, is one of the best manures for an old garden soil, or one which has always received common manures. This compound may be dissolved in water, and be freely used to water feeble plants, or dug in about them with a hoe. As soon as young plants have taken root in the new bed, they should be hoed, the oftener the better, till the leaves shade the soil. In its younger stages, the cabbage must feed largely on carbonic acid, &c., by its roots; but as it increases in size, it uses the leaves more extensively—hence the necessity of early and frequent hoeings. Some growers on Long Island, and in New Jersey, who supply New York market, produce from 20,000 to 100,000 each annually, which bring from 2 to 18 cents per head, according to size and season; a fair price in summer and autumn is about 6 cents. The fields are prepared by deep and subsoil ploughing, and are heavily manured, the horse hoe and subsoil lifter being used by the most skilful, while at greater expense of manual labor the old style of culture is still kept up.

**CABBAGE PALM** (*areca oleracea*), the highest of the American palms, often attaining an elevation of 150 feet, with a trunk of not more than 6 inches in diameter. It is found abundantly in the West Indies, and is very distinct

from the East Indian species of *araca*. The leaves grow only from the top, and their sheaths are so close that they form the green top of the trunk  $1\frac{1}{2}$  foot in length. The inhabitants cut off this top, take out the white heart of 2 or 3 inches in diameter, consisting of delicate leaves closely folded together which have been protected from any access of light, and eat it either raw, fried, or boiled. A tree which has grown for half a century is often cut down for the single bud or cabbage which crowns it.

CABELL, a western county of Virginia, separated from Ohio by the Ohio river. It is watered by the Guyandotte, and traversed by the principal thoroughfare from the Ohio to Richmond, and by the projected route of the Covington and Ohio railroad. The surface is hilly, and the soil in many places quite good, producing Indian corn and oats. In 1850 it yielded 281,826 bushels of Indian corn, 44,912 of oats, 11,559 of wheat, and 8,947 lbs. of tobacco. There were 9 corn and flour mills, 10 saw mills, 4 wool-carding mills, 4 tanneries, 14 churches, and 374 pupils attending public schools. Organized in 1809, and named in honor of William H. Cabell, governor of Virginia in 1808. Area, 448 sq. m.; pop. in 1850, 6,299, of whom 389 were slaves; capital, Barboursville; value of real estate in 1856, \$1,882,989.

CABES, GULF OF, an inlet of the Mediterranean, on the N. E. coast of Africa. The towns of Cades, or Khaba, and Sfax, or Sfakus, are situated on its shores. Its ancient name was *Syrta Minor*.

CABET, ETIENNE, a French communist, born at Dijon, Jan. 2, 1788, died in St. Louis, Mo., Nov. 9, 1856. He was brought up for the bar, and was appointed attorney-general of Corsica, from which office, however, he was soon dismissed. He was sent to the chamber of deputies in July, 1831. There he made himself so obnoxious to the government by his violent speeches, and at the same time by his inflammatory pamphlets and a journal (entitled the *Populaire*), that he was indicted for treason, and rather than subject himself to the imprisonment to which he was sentenced, he withdrew for 5 years to England. While there he published the *Voyages en Icarie*, in which he elaborated his scheme of communism, which from 1842 to 1843 passed through 5 editions. On Feb. 2, 1848, a band of 69 Icarians left France for the Red river in Texas, where Cabet had secured a tract of 400,000 acres of land, the free use of which was open to the settlers, under condition that before their departure they should deposit all their funds in the hands of Cabet, who assumed the financial and general control of the expedition. But the expedition turned out badly, and lawsuits were instituted against Cabet; and on Sept. 30, 1849, after he had left France for Texas, he was found guilty by default of swindling his disciples, and sentenced to 2 years' imprisonment. Meanwhile, with his colony of Icarians dwindled down to about 80 persons, he took up his abode at Nauvoo, on the Mississippi, in May, 1850, and soon

after returned to Paris. There, after a protracted trial, his innocence was fully established, July 26, 1851, by the court of appeal, and the judgment against him cancelled. He returned to Nauvoo, where he continued to preside over his colony; but many disappointments and cares embittered his life and accelerated his death. In justice to Cabet it should be said, that the highest moral tone prevailed at Nauvoo, and whatever may be the politico-economical objections to his system, the colony presented, as far as the conduct of the settlers was concerned, a model of purity and industry.

CABIRI (Gr. *Kαβίρει*), mystic Pelasgic divinities, which, according to Herodotus, were introduced thence into Samothrace, though they are spoken of as earliest worshipped in Lemnos. Neither modern critics of mythology nor the ancients themselves are agreed either upon the names, number, or origin of the Cabiri. By some there are said to be 6, by others 4, and others reduce them to 2. Some attempt to identify them with Castor and Pollux, others with the Corybantes, others with the children of Vulcan, and others still with the Roman penates. But whoever they were, they were regarded as the authors of religion and of the human race, and were worshipped by mysteries sacredly guarded from the knowledge of the uninitiated. Their worship gradually spread over Greece and Italy, but seems to have fallen into early disuse in all but a very few places. From what has transpired concerning the mysteries, it seems certain that the candidates for initiation were required to pass a long and painful abstinence from food and pleasure, and when admitted within the dark temple, were crowned with olive, girded with a purple belt, and then treated to all sorts of hideous sounds and sights, with most sudden alternations from din to silence, and from light to darkness, and were made to drink of 2 fountains, one of which (Lethe) was expected to obliterate the memory of the past, and the other (Mnemosyne) to secure a vivid recollection of all that was to be now taught them. The whole ceremony indicated an entire disconnection of their past and future lives. They were absolved from all their sins, and began a new existence. During the annual ceremonies in Lemnos, which like those in Samothrace lasted 9 days, all the fires on the island were extinguished, and new fire brought in a consecrated vessel from Delos. Those who were initiated were thought to be insured against storms at sea, and the purple girdle was worn as an amulet. The mysteries of the ancient religious systems probably have a common origin in these Cabirian rites, and some writers have attempted to trace the oriental and druidical ceremonies to this common source.

CABLE, a strong rope or chain. The name has of late years been applied to slender ropes used for telegraphic purposes, very likely on account of their great length. Cables are occasionally used to close the entrance of har-

bors, but most generally they serve to connect ships with their anchors. The greatest improvement ever made in the mooring of vessels is the substitution of the chain cable for the hempen one, which has been effected during the last 50 years. A chain is much less bulky and much more pliable than a hempen cable of the same strength; it is consequently stored in much less space, and is handled more easily. On account of its great bulk, a hempen cable loses much of its weight in the water, and consequently assumes a position much less curved than a chain. The great curvature of a chain makes it yield and play as if it were elastic when the vessel gives sudden jerks, and thus the strain upon a chain from this cause is never so great as upon a hempen cable. On a rocky bottom a chain will simply be polished bright by attrition, where a hempen cable would be cut in a few minutes. When the bottom is strewn with heavy stones, or with projecting points of rocks, round which the cable winds itself during the various evolutions of the ship caused by winds and tides, a hempen cable is often cut, or at least greatly injured, while a chain cable does not suffer in the least, on account of its power of resisting side strain, as will be explained hereafter. On board vessels, the cables are named after the anchor they are used with. The largest is called the sheet-anchor cable, and is used at sea; the next in size is the stream-anchor cable, and is used in rivers. Cables are made of various lengths, according to their size and to the service they are intended for. A cable's length is a measure of distances used by sailors, and is equal to 120 fathoms.—**HEMPEN CABLES** are large ropes of the kind denominated cable-laid. The fibres of hemp are first twisted into yarn; a number of yarns are twisted together into a strand; 8 or 4 strands are twisted into a rope denominated plain-laid; 8 or 4 ropes, used as strands, are twisted together to make the cable. The strands of a cable are consequently formed themselves of strands. The twist is reversed at each successive operation; that is, the yarn is formed by twisting the fibres from right to left; the yarns are twisted together from left to right, &c. It is customary to designate the size of a hempen cable by the length of its circumference, and that of a chain cable by the diameter of the rod of which the links are made. The largest usual size of cable is 24 inches circumference; it weighs 1 cwt. per fathom, is made of 8,000 threads, is equal in strength to a chain 2½ inches diameter, and is tested to carry safely 80 tons. Hemp in its natural state is stronger than when wet or tarred; nevertheless, it is advantageous to tar the cordage which is to be used at sea, as tar protects it against water, which would weaken, and ultimately rot it. It is obvious that the process of tarring after the cable is made is imperfect, and simply better than nothing, as the tar does not reach the core; the true way is to tar the yarns of which

the ropes are made.—**CHAIN CABLES.** The plan of substituting chains for cordage for holding anchors was patented in England in 1808 by Mr. Slater, a naval surgeon. Want of capital prevented him from demonstrating by experiments the value of his invention. In the year 1811, Capt. Brown, of the *Penelope*, 400 tons burden, made a voyage of 4 months to the West Indies, using a chain cable with twisted links. The success was complete. During the following years several vessels were saved by their iron cables, and thenceforward the change from hemp to iron proceeded uninterruptedly, till, at the present time, it would be difficult to find a ship without a chain cable on board. The form of links adopted by Capt. Brown was most imperfect; several other shapes were successively tried, till the best form was found and patented in England by Branton. The general shape of Branton's link is that of an ellipse. The inside curve, at each extremity of its long axis, is of the same curvature as the rods used to make the chain. In this manner there is just room enough for the next link, and no more. Across the link in the direction of the small axis is a cast-iron stay enlarged at its extremity, with a small projecting point in the centre of each end, which enters the link and keeps the stay in its place. From the extremities of the stay to the curve at each end, the rod forming the link is perfectly straight. When a cable chain with links of this construction is pulled upon, it resists twice as much as the rod of which it is made, and does not stretch more than a straight rod. If an obstacle is opposed to the side of the chain, the link or links acted upon may assume 2 different positions: the link may rest against the obstacle by its side, the axis of the stay being perpendicular to the face of the obstacle; in this position the link is strongest, as all its parts brace each other to prevent the bending of any—or the link may rest flat against the obstacle; in this position it is very weak, but this cannot happen if the obstacle is large, as in such case the next links would rest first against it by their sides, and if the obstacle is small, it is pressed between the sides or the back bones of the 2 next links, which close upon it and crush it to pieces. The links wear out much faster by their friction against each other, than by any other cause; and experience has taught that the ends where the friction is greatest should be of rod iron of a larger diameter than that of the sides. In consequence, the rods are manufactured with swellings at the places which are to form the ends. Several simple machines are used to manufacture chain cables; the successive operations are as follows: 1, heating the round bars of iron red-hot; 2, cutting them of the required length, but with opposite bevels; 3, bending the rods around an elliptic mandrel; one end is placed against the side of a vertical mandrel, and held there by a vice attached to the last, and a lever provided with a projecting pin extending out

side the rod is made to describe an ellipse, carrying the hot rod around the mandrel; this lever does not turn around a pin in the centre of the mandrel, but is attached to 2 slides, which are forced to move in grooves occupying the position of the two axes of the mandrel; thus the pin of the lever describes an ellipse parallel to the periphery of the mandrel; 4, the new link is hooked to the last preceding link of the chain in process of making, and welded at a small forge; 5, while it is still hot, the cast iron stay is introduced, and the link placed in a press, which compresses the two sides close upon the stay, at the same time that it makes these sides straighter; during this last operation an auxiliary straight rod is placed inside the end of the link, where the next link is to come, to prevent its closing. There are circumstances in which it is necessary to sever a cable, or to shorten or lengthen it; this is done by means of a bolt and shackle substituted for a link every 5 yards. Improvements have been made in the machinery for making chains, in which operations formerly executed by hand are performed mechanically, but we do not know that they have been applied to the manufacture of chain cables, and it is doubtful whether they would succeed as well on a large as on a small scale. The manufacture of chain cable was begun in the United States in the year 1820, by Messrs. Cotton and Hill, of Boston. They worked successfully during 30 years, when, finding they could no longer compete in cheapness with the importers of English-made cables, they closed their works. Several instances have since happened of vessels being lost by the breaking of the chain in fair weather, showing conclusively that the English makers, in the heat of competition, had been using very inferior iron, and that the certificates of proof test accompanying the cables were either spurious, or had been delivered for other cables than those sold. These facts called for action on the part of ship-owners and insurance companies, and Messrs. Cotton and Hill were induced to reopen their works in 1857. A large amount of property, not to speak of human life, has been lost at sea and on the American lakes by the use of cheap chains. It is now well understood that economy in this respect is a dangerous mistake. —The TELEGRAPH CABLE consists of one or more conducting wires enclosed in gutta percha, and protected by an external covering of wires. It is used for crossing rivers, having superseded the use of high poles on the banks, and for submarine purposes. The currents and freshets of rivers, especially of those in the west of the United States, and the breaking of the ice, are much more injurious to a cable than the tempests of the sea, and the strongest wires are required to withstand their action. It is not known whether a cable was first laid across a river in England or in America, but the first one laid across a sea was that from Dover to Calais. This cable was made by Newall and

Co., of Liverpool. It consists of 4 copper wires  $\frac{1}{4}$  of an inch diameter each, coated with 3 layers of gutta percha so as to be increased in size to  $\frac{1}{2}$  inch diameter. The 4 covered wires are laid parallel, with a slight twist to prevent them from separating, and the spaces between them are filled with tarred hempen yarn. The whole is tied by winding spirally around it another piece of tarred yarn. The external covering is made of 10 iron wires of more than  $\frac{1}{2}$  inch diameter, forming around as many helices 10 inches pitch. The outside circumference is 4 inches; the weight is 7 tons per mile; the distance from shore to shore 21 miles; the cost is \$45,000 for 25 miles; it was successfully laid October 17, 1851. Since then, smaller and larger cables have been constructed, with very slight modifications, and successfully laid. The Atlantic cable, the laying of which was completed Aug. 5, 1858, has a core of 7 fine copper wires forming a rope; around this rope are 3 layers of gutta percha, which is protected by tarred hemp wound around, and the whole is covered by 18 strands of 7 fine iron wires each. The circumference is nearly that of a dime, the weight 1,800 lbs. per mile. Of the total length manufactured, 2,900 miles,  $\frac{1}{2}$  was made by Newall and Co., Liverpool; the other half by Elliot, Glass, and Co., Greenwich, London; both firms being the most renowned in Europe. The Messrs. Chester, of New York, have lately established an improved set of machines for manufacturing telegraph cables and wire ropes. This machine can make a cable from  $\frac{3}{4}$  inch to 5 inches in circumference, the external covering of the last being formed of 12 wires of the largest size, that is, about  $\frac{1}{2}$  inch in diameter. The machinery for making telegraph cable is quite different from that for working hemp. The reason is in the fact that wires must not be twisted, but simply laid, and that it is just the contrary for hemp.—The length of some of the best known submarine cables is: Dover to Calais, 24 miles, laid in 1851; Dover to Ostend, 75 miles (1852); Holyhead to Howth, 65 miles (1852); England to Holland, 115 miles (1853); Italy to Corsica, 65 miles (1854); Varna to Balaklava, 840 miles, Balaklava to Eupatoria, 60 miles (1855); across the gulf of St. Lawrence, 74 miles (1856); Sardinia to Africa, 125 miles (1857); Atlantic cable, Valentia bay to Trinity bay, 1,950 miles (1858).

CABO FRIO (Cool Cape), a cape, city, and seaport of Brazil, province of Rio Janeiro. The city is situated at the S. E. extremity of Lake Araruama, and N. E. of the cape. A stone bridge, built in 1836, connects it with the continent. It has an electoral college, established in 1840, and an extensive trade in salt and fisheries; but the climate is unhealthy. Pop. about 3,500.

CABOOL, or KABOOL, a province of Afghanistan, extending from the Hindoo Koosh on the N. to the S. of Ghuznee, and from the Khyber mountains on the E. to Bamian on the W. It is about 250 miles in length, and 150 in breadth.

Cabool was once the name of a powerful kingdom, which reached almost from the shores of the Caspian sea to the vicinity of Delhi, and from the Oxus to the Persian gulf.—CABOOL, the capital of the above-described province, and of the Dooranee empire as long as it existed, is in lat.  $34^{\circ} 30'$ , long.  $69^{\circ} 6'$ , on the Cabool river, immediately above its confluence with the Loghur. The city is about 8 miles in circumference, and is but indifferently fortified, being merely defended on the western side by a line of weak ramparts extending from one to the other of those ranges of hills which almost surround the plain wherein Cabool stands. The houses are built of sun-dried bricks and wood, and are in general from 2 to 3 stories high. Four spacious bazars, erected by the celebrated Ali Murdan Khan, once adorned the centre of the city, but in 1842 the British utterly destroyed them. The citadel, styled Bala Kissar, or Upper Fort, occupies an eminence in the eastern quarter, and contains the governor's palace. The mosques and other public edifices exhibit no architectural beauties. Cabool has but one college, and even that is fast going to ruin. The serais, or public inns for strangers, are numerous, but neither elegant nor convenient. The baths are abominable, both because of their filthiness, and because of the offensive smell proceeding from the fuel which is used in heating them. The city is abundantly supplied with water for every domestic and industrial purpose by the river Cabool, which is here crossed by 8 bridges; one, a substantial structure of brick and stone; another, a frail fabric of wood, over which even the foot-passenger cannot pass in safety; a third, which spans the river toward the west, is strongly fortified and jealously guarded by armed sentinels. The climate of Cabool, from its proximity to the great Himalayan range and from its elevation above the level of the sea, is severe in the winter season, which begins early in October, and lasts till the end of March. During this period the opulent citizens seldom leave their houses, passing the tedious time within doors in as agreeable a manner as possible. In the summer season, however, when the climate of their city is as healthful as it is delightful, they indemnify themselves to some extent for their hibernal imprisonment, by living almost entirely in the open air.—Cabool is a city of considerable antiquity. As early as the 7th century of our era it was the residence of a Hindoo prince, and in after times it was for a short period the metropolis of the emperor Baber. In 1739 it was taken by Nadir Shah, and annexed to his dominions. On the death of Nadir Shah, Ahmed Shah Abdallah seized on it, and in 1774 his son and successor, Timour, made it the capital of the Dooranee empire. After the downfall of Mahmood, the last of the Dooranee dynasty, Dost Mohammed Khan took possession of Cabool and its territory, and maintained himself there till 1839, when the British marched an army into the country, under pretence of

placing Shah Shooja, the brother of Mahmood, on the throne of his ancestors, and occupied the city. On Nov. 2, 1841, however, their occupation was suddenly terminated by an outbreak on the part of the inhabitants, which resulted in the massacre of the whole British force with the exception of 1 European and 4 or 5 sepoyas, who had the good fortune to escape, and a few persons of rank that were spared for the sake of the ransom which might be obtained for them. Gen. Pollock subsequently advanced toward Cabool and was joined by the forces under Gen. Nott; the English army re-occupied the town in Sept. 1842, liberated the prisoners, and avenged the outrage by destroying the principal public edifices of the offending city. This achieved, the British retired, and left Dost Mohammed to resume his sway over it. Subsequently overtures were made by the ruler of Cabool, and an alliance was concluded, March 30, 1855. Pop. about 70,000.

CABOT, GEORGE, U. S. senator from Massachusetts, was born in Salem, Essex co., in Dec. 1751, died in Boston, April 18, 1823. At an early age he went to sea and rapidly rose to command, and made some voyages as master of a ship, diligently employing all his leisure in well-selected reading. His extraordinary qualities were soon recognized. When 25 years old he was a member of a provincial congress which met at Concord, in Massachusetts, and there he displayed much wisdom in preventing certain measures by which it was hoped to control the price of merchandise. At that time the science of political economy was almost wholly unknown, but he had already grasped its leading principles. As a member of the state convention which, in 1788, adopted the federal constitution, he maintained a high position; and, being immediately afterward sent from Massachusetts to the senate of the United States, he won not only general respect, but the especial confidence of Washington and Hamilton. His knowledge of commerce and of the laws and methods of trade, greatly assisted Hamilton in maturing his admirable system of public finance. In 1798 he was offered an appointment as secretary of the navy; he refused it and renounced all public life, but was afterward sometimes urged to take office with an importunity he could not resist. From an early age he was accustomed to guide others by his calm and accurate judgment, his power of bringing within consideration all the facts and reasons which were of the essence of a question and them only, and his capacity of escaping from other men's excitement, even when his interest in any matter was not less than theirs. The same qualities were applied to public questions with the same happy results. And thus, although he had no desire for public life, and all experience of it only strengthened his love of retirement, he was obliged to yield in some instance to the conviction that important exigencies called upon him to do what no other man could do so well. He never shrank either from labo

or responsibility. He knew that no breath of slander ever assailed him, and that all men regarded him as equally incorruptible by passion or by interest. He knew, also, the power which this position gave him, and the duty it imposed, of guiding public opinion through those exigencies to which no man was equal who did not enter into the actual interests of the day with an earnestness that secured the sympathy of those most interested, with character enough to influence others, and with strength to save, not himself only, but the multitudes whom he led, from the aberrations of passion or prejudice. It seemed to be his function to induce others to submit themselves to the same good sense which was the unflinching and unerring master of his own life. In the Hartford convention, of which Cabot was president, his characteristic qualities were most active and conspicuous. This is not the place to speak of that body, but of Cabot in connection with it we may safely say that he was the leader of those members who went there determined not to stop short of such measures as they deemed legal, justifiable, and necessary, but not to go, and not to suffer an excited people or their excited representatives to go any further. In his conduct in that convention he only displayed the same characteristics and the same important usefulness which had marked his whole public career and his private life.—He belonged always, by education and by the constitution of his mind, to the federal party of that day, that is, to the conservative, rather than to the progressive party, or to the party characterized by the wish that law should define and guard public freedom rather than by the passionate desire for liberty, with more regard to its extent than to its quality.—He was not an orator, but was most persuasive, both in public and in private, by the clearness of his views and the cogency of his arguments, and by his absolute freedom from all that insincerity or duplicity which brings against a speaker a suspicion or a fear fatal to his influence.—His personal appearance, dress, and habits were of great elegance and refinement, but of equal simplicity. His conversation was extremely attractive, conveying as it did a wisdom by which all felt that they were instructed, but always with such ease and playfulness that none were oppressed. In his later years, while living for the most part as a private man, he probably exerted as great an influence upon public opinion as any one of his contemporaries. He was a member of the church in Boston of which Dr. (afterward president) Kirkland was pastor, and died at the age of 72, after bearing with exemplary fortitude the distress of a lingering and painful disease. He left a son, who still survives, and a daughter who, after his death, married Dr. Kirkland and has since died.

CABOT, JOHN, or GIOVANNI CABOTA, or, in the Venetian dialect, ZUAN CALBOT, or ZUAN CABOTA, the discoverer of the continent of North America. His name first occurs in the

archives of Venice; on March 28, 1476, denization was granted him after the customary residence of 15 years. The full entry of his denization would probably have named his birthplace; but it is not to be found. In the year 1495, and probably for years before, he resided at Bristol with his wife, who was a Venetian woman, and 3 sons. At that time it had become the received opinion that the earth is a sphere, and that the shortest and readiest way of reaching the Indies was by sailing west. This opinion was confirmed by the voyage of Columbus, who was thought to have reached the outlying isles of the Indies. On March 5, 1496, John Cabot and his 3 sons obtained a patent from Henry VII., authorizing them or either of them, their heirs or their assigns, to search for islands, provinces, or regions in the eastern, western, or northern seas; and, as vassals of the English king, to occupy the territories that might be found, with an exclusive right to their commerce, on paying the king a fifth part of all profits. Under this charter, John Cabot, some time in May, 1497, embarked in a single vessel, accompanied by his son Sebastian, and sailed west, as he said, 700 leagues, when, on June 24, 1497, he came upon land which he reported to have been a part of a continent, and which he assumed to be in the dominions of the Grand Cham. A letter of that year represents him as having sailed along the coast for 800 leagues; he landed, but saw no person, though he believed the country not uninhabited. He planted on the soil the banners of England and of Venice. On his return he discerned 2 islands to the starboard, but, for want of provisions, did not stop to examine them. He reached Bristol in August. His discovery was the admiration of that city, and attracted the favor of the English king. On Feb. 8, 1498, Henry VII. granted John Cabot special authority to impress 6 English ships at no higher charges than were paid for ships taken for the king's service, to enlist companies of volunteers, "and theym convey and lede to the londe and isles of late founde by the seid John." This license has been erroneously called a second charter; it was not so; the charter of 1496 was still valid and sufficient. This license is the last record that has been found of the career of John Cabot. He himself made no voyage under it, whether from illness or death, or other reason, can only be conjectured. Neither the time nor the place of his death, nor his age, is known. Neither is it known what country gave him birth. He was a Venetian only by denization. As he is found residing at Bristol, the conjecture would arise that he was born an Englishman; but the license granted him in Feb. 1498, calls him "Kabotto, Venician," a phrase which in our day, and still more in those days of stricter feudal rule, clearly implies that he was not a natural born subject of the king of England. Had he been so, he would have been claimed as an Englishman. Thus not even the native



country of the discoverer of the North American continent can be ascertained. The authorities respecting John Cabot are, the Venetian archives; the patent granted him in 1496; the license in 1498; a letter dated Aug. 23, 1497, from Lorenzo Pasqualigo, a merchant at London, to his brothers at Venice; and the legend on the map of Sebastian Cabot, cited in Hakluyt, giving June 24, 1497, as the date of the discovery of the continent. In 1566, there was at Oxford a copy of Sebastian Cabot's map on which the date of the legend was 1494. Another copy with the same date has lately been discovered in Germany; but the legend is not by Sebastian Cabot himself, and the original charter of 1496, the letter of Pasqualigo in 1497, and the license of 1498, combine to prove the date 1494 to be an error. The better knowledge of the career of John Cabot is particularly due to the researches of an accomplished English scholar, Rawdon Brown.

CABOT, SEBASTIAN, son of the preceding, a cosmographer, and the discoverer of the coast line of the United States as far south as the Chesapeake. The time and the place of his birth are uncertain. Eden says, "Sebastian Cabotte told me that he was borne in Bristowe, and that at four years old he was carried with his father to Venice;" but Contarini, the Venetian ambassador at the court of Charles V., relates in his diary that Sebastian Cabot informed him he was born in Venice, but bred in England; and this is confirmed by the denization of John Cabot at Venice, in 1476, after a residence there of 15 years. The time of Sebastian's birth seems to have been not earlier than 1475, nor later than 1477. There is no sufficient reason to doubt that he accompanied his father in the voyage which discovered America. In May, 1498, he, without his father, led forth 2 ships and a large company of English volunteers from Bristol, in search of a short north-western passage to China and Japan. He sailed so far to the north, that in the early part of July, the light of day was almost continuous. Finding the sea full of icebergs, he turned more to the south, and arrived at land which most persons believe to have been Newfoundland. Pursuing his search, he reached the main land of North America, landed in several places, and saw natives clad in the skins of beasts, and making use of copper. He proceeded as far south as the latitude of the straits of Gibraltar, and as far west as the longitude of Cuba. His object had been to find a passage to the rich continent of Asia, and though he discovered an immense territory under a temperate sky, his voyage was considered a failure. Vasco da Gama had reached India by way of the Cape of Good Hope, and filled the world with his fame. The discoveries of the Cabots were so little valued, that the family suffered the patent granting them the exclusive privilege of trade to be lost. On the death of Henry VII., Sebastian Cabot was invited from England by Ferdinand of

Spain, father-in-law of Henry VIII., and was appointed one of the council for the New Indies. In 1518 he was named pilot major of Spain; in April, 1524, he attended the congress assembled at Badajoz to decide on the conflicting claims of Spain and Portugal to the Moluccas. All the while, and during his whole life, the great object of his ambition was the discovery of a direct passage to Asia. Having in early life failed to find one by the north-west, in 1526 he commanded an expedition sent out in search of a south-western passage. In this pursuit, in 1527 he entered the river La Plata. Remaining in those regions for several years, he discovered Paraguay. He did not pass round the continent at the south, but, returning to Spain, reached Seville near the end of July, 1530. In the first year of the reign of Edward VI., on Oct. 9, 1547, the privy council issued a warrant "for the transporting of one Shabot, a pilot, to come out of Hispaine to serve and inhabit in England;" and he came at the summons in 1548, with his mind still bent on finding a short passage to the Indies. On Jan. 6, 1549, the king gave him a pension of 250 marks, or £166 18s. 4d., "in consideration of good and acceptable service done and to be done" by him. On Jan. 19, 1550, the emperor Charles V. applied for his return, but without result. His influence was observable in inspiring confidence and enterprise among the merchants of England; and in March, 1551, "Sebastian Cabote, the great seaman," received from the king a special reward of £200. The patent granted to the family by Henry VII. in 1496 having been lost, he obtained of Edward VI. a copy of it from the rolls, and prepared to prosecute a new voyage of discovery, still in search of a passage to the Indies. In 1553, a company of merchants, of which he was the president, sought to find it by way of the north-east, expecting to turn the north cape of Norway, and sail southerly to China. One of the 2 ships was frozen up in a Lapland harbor, and all the persons on board perished with cold; the other discovered Archangel, and opened a commerce between England and Russia. On Sept. 9, 1553, soon after the accession of Queen Mary, the emperor Charles V., through his ambassador, again and very earnestly made request that Sebastian Cabot should be sent back to his service; of so much importance did he seem even then in his great old age. But Cabot refused to leave England.—A new company was formed for discovery on Feb. 23, 1556, of which he was a partner and the president. On Monday, April 27, 1556, accompanied by divers gentlemen and gentlewomen, he went on board the pinance the Serch Thrift, which was on the eve of sailing, and distributed most liberal alms; then going on shore, he and his friends gave a banquet to the ship's company, and for very joy at the forwardness of the intended discovery, the octogenarian cosmographer entered into the dance himself. At parting, he com-

mended the ship's company to the governance of Almighty God. On May 27, 1557, he resigned his pension, and on the 29th of the same month he received a new grant of it under a different form. These are the last authentic notices of Sebastian Cabot, one of the most remarkable men of his age. Where he died is not certain, though it was probably in London; the precise time of his death is also unknown, and no one can tell his burial-place.—The best work on Sebastian Cabot is the memoir by Richard Biddle, but further materials have been contributed by Rawdon Brown, and by Varnhagen in his *Historia do Brasil*. One of his maps has lately been found in Germany, and has been published by Jomard at Paris in the *Monuments de la géographie*. In preparing the present article, some unpublished manuscripts have also been used.

CABOTVILLE. See ЧИКОПЕЕ.

CABRA (anc. *Egabrum*), a Spanish town in the province of Cordova. Excellent wine, grain, and fruit, are produced in its vicinity. There are manufactories of cloth and linen, and a great annual fair is held in September. The town contains a fine Gothic cathedral, a Dominican convent, a college, a hospital, schools, a theatre, and famous mineral springs. The grotto of Jarca and other curiosities attract the attention of the geologist. Pop. 11,576.—The name is common to several small Spanish towns, a village of Central Africa, one of the Nicobar islands, and a small river in Brazil.

CABRAL, ANTONIO BERNARDO DA COSTA. See COSTA-CABRAL.

CABRAL, FRANCISCO, a Portuguese missionary, born in 1528, at Covilhão, died April 16, 1639, at Goa. At the age of 26 years he was appointed professor of philosophy and theology at Goa, and superintendent of the Jesuit schools in India. He proceeded thence to Japan, where he effected the conversion of a large number of the inhabitants, including 2 of the princes with their families. He also had direction of the missions in China, and shared in the toils and self-devotion of the missionaries. He returned to Goa, and held for 88 years the office of superior of the Roman Catholic educational establishment in that place.

CABRAL, PEDRO ALVAREZ DE, the principal discoverer of Brazil, born in Portugal in the latter part of the 15th century, died about 1526. King Emmanuel, animated by the discovery of America and of the Cape of Good Hope, determined to fit out a new and magnificent commercial expedition to Calicut, composed of 13 vessels richly laden, and manned by the most experienced and bravest sailors of the time. Cabral was appointed commander-in-chief, and under him served many mariners whose names had already acquired celebrity. After passing beyond the Canaries, the fleet took a westerly direction, and whatever may have been the motive of the course, the result was the more complete discovery of Brazil (the country having been first discovered in the preceding January,

by Pinçon, a companion of Columbus), of which on April 24, 1500, Cabral took possession in the name of his king. He now steered for India, the special object of his mission, but soon lost in a tempest half of his fleet. With the remainder he kept his way and landed first at Mozambique, and afterward at Calicut, and succeeded there, after a series of negotiations with the Indian princes, in establishing a factory. He returned to Lisbon July 31, 1501, having the 6 ships which remained of his fleet laden with the riches of the East; but after this there is no further mention of him in the Spanish annals.

CABRERA (anc. *Capraria*), one of the Balearic islands in the Mediterranean, in the province and S. of Majorca. It is used by the Spanish government, to which the island belongs, as a place of exile, has a fort, and a small harbor. Cabrera is also the name of several villages and a river of Spain.

CABRERA, RAMON, count de Morella, duke de la Victoria, a prominent Carlist general, born at Tortosa, in Catalonia, Aug. 31, 1810, in the middle walks of life, brought up for the clerical profession, for which, however, he was unfitted by his love of pleasure and dissipation. When, after the death of Ferdinand VII., civil war broke out between the partisans of his brother Don Carlos and those of the present queen Isabel II., the priests became the most zealous champions of Don Carlos, and their enthusiasm acted so powerfully upon the impetuous spirit of young Cabrera, that he joined in 1833 a small band of guerillas. He fought with singular ferocity, which rose to fury, when, Feb. 16, 1836, upon the order of the queen and of Mina, Gen. Nogueras put to death Cabrera's aged mother and his 3 helpless sisters. Cabrera took vengeance upon all the Christinists who fell into his hands. His enemies treated him like a wild animal, and hunted him, after he had laid waste Aragon, Valencia, and Andalusia, from one place to another, until exhausted, wounded, miserable in body and spirit, he only escaped from their hands by taking refuge in the house of a priest in the village of Almagón. As soon as he had recovered his health, he resumed his attacks upon the Christinists, and after a temporary defeat at Torre Blanca, eventually took Morella. Hence in 1838 Don Carlos created him count de Morella, and at the same time lieutenant-general, and in this capacity Cabrera continued to fight for the cause of the pretender, and for what he considered the cause of the priesthood and the church, until 1840, when he was compelled to flee to Paris. By order of Louis Philippe he was arrested and consigned to the fortress of Ham, but was soon set free. In 1841, he took up his residence at Lyons, and remained there passive until 1845, when he opposed the abdication of Don Carlos in favor of the count of Montemolin, with whom, however, he was, notwithstanding this political opposition, on intimate social terms, and whom, in Sept. 1846, he

accompanied to London, in the hope that the Spanish marriage question would offer a good opportunity to dispose the court of St. James favorably for the cause of the Carlists. He also resumed his agitation in Catalonia, Valencia, and Aragon, but he was as little successful in Spain as in England. There was not the least chance for any rising on behalf of the count of Montemolin until 1848, when the French revolution filled Cabrera with the most sanguine expectations; which, however, were doomed to disappointment, as on his arrival in Catalonia he was but indifferently received, and on Jan. 27, 1849, he was severely wounded at Pastoral, although he succeeded in making good his escape to France. He was again arrested, and again set free in August of the same year, when he took up his abode in London. Here he married a rich English woman, a Miss Marianne Catharine Richards, who had conceived an enthusiastic attachment for the forlorn cause of the Spanish Carlists and for their representative. In July, 1850, he proceeded to Naples, in order to turn to the benefit of the count of Montemolin the differences existing between the Spanish and Neapolitan cabinets, but at the beginning of 1851 he was expelled from Naples, and since then has alternately resided in England and France.

**CACAPON** (often pronounced Capon), or **GREAT CACAPON**, a river of Virginia, about 140 miles long. Rising in the Alleghany mountains, it traverses Hardy, Hampshire, and Morgan counties, and falls into the Potomac about 4 miles W. of Bath or Berkley springs. The Little Cacapon flows through Hampshire county, a few miles west of the river just described, and also enters the Potomac.

**CACCIA**, **GUGLIELMO**, an Italian painter, born at Montabone in 1563, died in 1625, more commonly known by the name of Moncalvo, from the place of his education. He was one of the best fresco-painters of his century. Many of his works remain in galleries in the northern part of Italy, among which may be mentioned his masterpiece in oil, the "Descent from the Cross," and his "Glory of Angela." He founded the convent of the Ursulines at Moncalvo, where 5 of his daughters took the veil, two of whom are remarkable as being among the few women ever known to have been skilled in fresco-painting.

**CACERES**, the ancient *Cecilia Castra*, a city of Spain, capital of a province, and on a river of the same name, about 175 miles S. W. from Madrid. It was founded by Q. Cæcilius Metallus in 142 B. C., and contains some fine monuments and curious Roman and Moorish antiquities. The new part of the town surrounds the old, and contains 1 handsome principal square, which is a favorite resort of the inhabitants. It has manufactures of cloth and earthenware, and considerable commerce. Pop. 12,051. It was taken from the Moors by Alfonso VIII. in 1142. They recaptured it, and it was finally taken from them by Ferdinand II. of Leon in 1184.

**CACHAR**, **KATSCHAR**, or **HAIRUMBO**, a district of British India, in the presidency of Bengal, bounded N. by Assam, S. by Independent Tipperah, and lying between lat. 24° 18' and 25° 50' N., long. 92° 24' and 93° 38' E. Length from N. to S. 110 miles; breadth, 65 miles; area, 4,000 square miles; population, 60,000. It comprises 2 divisions—Cachar proper, or S. Cachar, and Dharmapoor, or N. Cachar. It is a mountainous, well-wooded, and abundantly watered district, traversed from E. to W. by the Barak, a river navigable during most of the year, and by several small streams, down which timber, bamboo, and canes are floated. Travelling is attended with more than common difficulties, owing to the small number of roads, the frequently impassable state of the jungles and mountain pathways, and the inundations prevailing from June to November. The moisture arising from heavy periodical rains renders the climate cooler than that of Calcutta, but deadly to Europeans. Vegetation is rapid and luxuriant. The tangled grass and thick woods shelter vast numbers of elephants, buffaloes, wild deer, and tigers; and so formidable are the latter, that a large reward has been offered by government for their destruction. The principal crops are rice, sugar, coffee, and cotton. The exports are salt, timber, cotton, wax, silk, and iron ore. The inhabitants resemble the Chinese in appearance, are robust, and fairer than the Bengalese.—Cachar was invaded by the Burmese in 1774, and was shortly afterward compelled to pay tribute to them. During the administration of the rajah Govind Chunder, who mounted the throne in 1810, it excited the cupidity of the neighboring state of Cassay, and for 5 or 6 years was the arena of incessant contentions among the several princes of that nation. One of the latter finally obtained the mastery, expelled the rightful rajah, and was in turn dispossessed by the Burmese, after which the British put an end to the strife by occupying the country, and restoring Govind Chunder to his throne in 1824. A portion of the territory which resisted his authority was made over to its *de facto* ruler, and has since lapsed to the East India company. The rest was divided between the British and the rajah of Cassay, on the death of Govind Chunder without heirs in 1830.

**CACHET**, **LETTRES DE**, one of the most convenient devices of despotism in France before the revolution. They were simply sealed letters from the king, countersigned by a secretary of state, by virtue of which a man was arrested, taken to a prison, and put out of the way, without any judgment or appeal. Formerly, under the name of *lettres closes*, they were made use of occasionally to send imperative orders to a court, as a means of delaying the course of justice; but in the 17th century their use was extended. They were obtained by any one having influence with the king or his ministers, and persons were imprisoned, sometimes

for life, on the most frivolous pretexts, for the gratification of private pique or revenge. They were most frequently resorted to during the reign of Louis XV. Had some nobleman ruined a poor girl, he silenced the complaints of an indignant father by sending him to prison through the means of a *lettre de cachet*. Was some honest officer in the administration suspected of looking too deeply into the so-called secrets of state, a *lettre de cachet* was immediately issued to punish his indiscretion. A lady of high rank being in love with some prince, and annoyed by her husband's jealousy, found nothing easier than to have the husband confined in a dungeon. Husbands, in their turn, had recourse to the same expedient to get rid of their wives. Thus, any courtier, if he had friends about the ear of the king, his ministers or favorites, could shield himself against the consequences of his crimes. There was even a time when money was sufficient to obtain *lettres de cachet*, and the mistress of one of the ministers of Louis XV. sold them openly. The father of Mirabeau obtained no less than 59 *lettres* against his son. Latude was confined to prison for 35 years for a trifling intrigue against Mme. de Pompadour. When the Bastille was taken by the people, July 14, 1789, there were prisoners who had been brought there on *lettres de cachet*, who had not seen the light for 20 years; others who had been so long detained that they had become idiots, and could not remember why or when they had been incarcerated.

**CACHUCHA**, a Spanish dance, made popular in Europe by the inimitable grace with which Fanny Elssler introduced it into the ballet of *Le diable boiteux*. The steps are those of the bolero and fandango. An air of an old Spanish ballad and castanets accompany the dance.

**CACIQUE**, or **CAZIQUE**, an aboriginal Mexican term of nobility. It has been applied by the Spanish-Americans to the chiefs of the Indian tribes of Central and South America.

**CACTUS**, a genus of plants, the type of the natural order *cactaceae*, comprising numerous species, all of which are natives of America. The name was originally given by Theophrastus to a spiny plant of Sicily. The cactuses have fleshy and succulent, globular or columnar, often deeply channelled and many-jointed stems, usually leafless, but armed with spines and bristles. The structure of many of the species is singular and grotesque, and their appearance is interesting, by reason of the roughness of the stalks and the beauty of the flowers. Found chiefly in the hot stony places of tropical America, their stems are filled with an abundant juice, which, being enclosed within a tough and impermeable skin, enables them to support a sluggish vital action without inconvenience in a parched soil. They vary in stature from creeping stems to angular ascending trunks, sometimes 30 feet in height. The flowers, varying from pure white to rich scarlet and purple, are much increased in size

and brilliancy by cultivation in gardens and greenhouses. They thrive, however, only in the poorest soil. More than 60 species of cactuses have been described. The *C. melocactus*, the great melon thistle, or Turk's cap, grows from the apertures of rocks in the driest and hottest parts of America; it appears like a green melon, with deep ribs, set all over with sharp thorns, and was likened by Linnæus to a hedgehog; it has on the top a small discoid, villous cap, from which the flowers grow in a circle; it attains a height of 4 or 5 feet in the West Indies, and has been brought to more than half this size in England; in times of drought they are ripped up by the cattle and their moist internal part greedily devoured. The *C. grandiflorus* is remarkable for its large, beautiful, sweet-scented flowers, which begin to open in the evening, and close again forever before morning; the calyx, nearly 1 foot in diameter, is of a splendid yellow, enclosing pure white petals, and the flower during the 5 or 6 hours of its continuance is hardly surpassed in beauty; its structure is such that in cultivation it may be trained against a wall. The *C. flagelliformis* is a more delicate species than the preceding, with a greater number of smaller pink flowers, which keep open 3 or 4 days; its slender trailing branches require support. The *C. Opuntia*, prickly pear, or Indian fig, derives its name from Opus, in Greece, where it was indigenous, although, like the others, a native of America; it also grows wild in Italy, and flourishes in the lava at the foot of Etna; it is cultivated in England and America for its fruit, upon which the Indians of Florida lived almost exclusively for 3 months in the year. The *C. tuna* is used for hedging; 8 rows of it were planted as a boundary when the island of St. Christopher was divided between the English and the French. The *C. cochiniifera* is the chief nourishment of the cochineal insect; the delicate red juice of the fruit imparts a tinge to the urine. All the species of cactus are best cultivated in a sandy loam mixed with brick rubbish.

**CACUS**, a giant, said to have been the son of Vulcan, and represented by the classic poets as a monster who continually vomited forth fire and smoke. He dwelt in a cave on Mount Aventine, and the entrance to his den was adorned with human heads and limbs. He was the terror of the inhabitants of the surrounding country, whose cattle he stole and dragged backward into his den, so that their tracks could not be discerned. Having dealt thus by some cattle belonging to Hercules, he was finally slain by that hero; the *ara maxima* was dedicated in honor of his victory.

**CADAHALSO**, José de, a soldier and poet of Spain, born in Cadiz in 1741, died at Gibraltar, Feb. 27, 1782. At 20 years of age he travelled through Italy, Germany, England, and Portugal. On his return to Spain, he entered the army and rose to the rank of colonel. He published tragedies and Anacreontic poems which gave him a high reputation. His work,

*Eruditos a la Violeta*, was a satire on superficial learning. He also directed the early genius of Melendez Valdez, so that it was said that of all his works Melendez was the best.

CADAMOSTO, or CA DA MOSTRO, LUGER, an Italian navigator, born in Venice in 1482, died about 1480. Before he was 22 he had made several voyages in the Mediterranean and Atlantic. In 1454, during a voyage to the Netherlands, his vessel was constrained by bad weather to put in at Cape St. Vincent, in Portugal, where Prince Henry, the heir apparent to the crown of that kingdom, then chanced to be sojourning. This prince proposing to the young Venetian that he should undertake a voyage of discovery to the islands and coast of Africa, he sailed March 22, 1455, from Lagos; visited Madeira, the Canaries, Capes Blanco and Verd, the Senegal and the Gambia. In the following year he sailed along the African coast as far as a river to which he gave the name of San Dominico. On his return to Venice he wrote an account of his 2 voyages, first published in 1507.

CADARI, a sect of Mohammedans, who denied fatalism and asserted the freedom of the will. The founder of the sect suffered martyrdom.

CADDO, a parish of Louisiana, bordering on Texas and Arkansas; area, 1,200 sq. m. Red river and the Great Raft form its eastern boundary. During 8 months of the year the river is navigable as far as Shreveport, the capital. The surface of the parish is undulating, and is partly occupied by Soda and Caddo lakes, which communicate with Red river and with each other, and are navigable by steamboats. In 1855 the productions were 11,616 bales of cotton, and 359,875 bushels of Indian corn; value of real estate, \$1,880,780; pop. 9,798, of whom 5,681 were slaves.

CADDOES, an Indian tribe who once occupied the region immediately north of the present Texas line. They have been reduced to less than 800 souls, and forced to take refuge among the Comanches.

CADÉ, JOHN, the Jack Cade of Shakespeare, an Irish rebel, died July 11, 1450. Early obliged to flee from Ireland, he took refuge in France. In 1450 he passed over to England at the moment of great popular dissatisfaction with the ministers of Henry VI. He at once pretended to be a relative of the duke of York, assumed the name of Mortimer, raised the standard of rebellion in Kent, May 8, and very soon found himself at the head of 20,000 men. He advanced to Blackheath, and interchanged notes with King Henry, to whom he made known the griefs of his companions. He defeated the royal troops which were sent against him, and entering London July 1, immediately caused the execution of 2 of the offensive ministers. At first he kept his army under rigorous discipline, but after a few days' residence in the capital their propensity to plunder could no longer be restrained, and they

pillaged some of the finest houses. This aroused the citizens against them, and on the night of July 5 Cade met with his first defeat. A promise of pardon now dispersed most of his followers, and finding his force no longer sufficient for resistance he took to flight, but was overtaken and killed.

CADELL, ROBERT, a Scotch bookseller, and the publisher of the later works of Sir Walter Scott, died at Edinburgh, Jan. 20, 1849. In the failure of Mr. Constable, his first publisher, Scott was involved to the amount of more than £100,000, and Cadell immediately purchased the printed stock of Scott's books, monopolized the copyrights, and by various improvements in their style of publication increased the interest of the reading community, and the amount and profits of the sales. His talents as a publisher, joined with the vigor of Scott's genius, enabled the latter to meet all his heavy obligations, and to preserve to his family the domain of Abbotsford. At the death of Scott £20,000 was still wanting to secure this result, and this amount was advanced by Cadell, who asked no other security than the profits which would accrue from Sir Walter's copyrights.

CADENCE, in music, a pause at the end of an air, which is followed by an extemporaneous effusion by the performer.—In reading or speaking, the fall of the voice. In such exercises a key-note is generally taken spontaneously, and the fall of the voice below this is a cadence.

CADES, GIUSEPPE, an Italian painter, born at Rome in 1750, died there in 1800. He could reproduce the style of any great master with such accuracy as to deceive the most skilful connoisseurs; which dangerous gift, however, he always exercised in the most honorable manner.

CADÉT (Fr.), the younger or youngest brother; also, a person who serves in the expectation of a commission in the army, but who receives pay, while a volunteer serves gratuitously. The name cadet is also applied to students in military and naval academies, as, for instance, to those of West Point and Annapolis.

CADET DE VAUX, ANTOINE ALEXIS FRANÇOIS, a French apothecary and chemist, born in Paris, Jan. 18, 1743, died June 29, 1828. He was the inventor of the galactometer, or instrument for ascertaining the quality of milk.

CADI (Arabic, *Kaidon*), an inferior judge among Mohammedan nations. The name is generally applied to functionaries in a village or small town, while the superior judges in a province or a city are called *mollah* or *moula*. The Mohammedans deriving their law from the Koran, the cadis and all other magistrates form part of the higher clergy.

CADIZ, a city and province of Spain in Andalusia; pop. of the province, about 800,000; of the city, in 1857, 61,844. The town is situated on the S. W. coast, on the rocky extremity of a small tongue of land projecting from the

Isla de Leon; lat. 36° 31' N., long. 6° 17' W. The city fronts the ocean; behind it is the superb bay of Cadiz, the entrance to which from Puerto de Santa Maria is protected by the forts of Matagorda and Puntales on either side of the channel. The Isla de Leon is separated from the mainland by the Rio de Santa Petri, which is crossed by a bridge. On the mainland is the great navy yard and arsenal of La Carraca.—Cadiz is the most important commercial and seaport city of Spain, but has declined from the position which it occupied in the glorious period of the Spanish colonial empire, when it was one of the chief maritime cities of Europe. Its position at the entrance of the Mediterranean and south of the peninsula continues, however, to give it great commercial importance. In 1829 it was made a free port, but this privilege produced such a large number of smugglers that it was withdrawn 8 years afterward. This circumstance, and the competition of Gibraltar, Malaga, and other cities, exercise an unfavorable effect upon its commercial prosperity. The imports consist mainly of sugar, coffee, cocoa, indigo, spices, rice, wheat, salt fish, butter, cheese, hides, cotton, wool, linen, silk, iron and brass manufactures, hemp and flax, earthenware, copper, tin, crystal and glass ware; the exports, of wines, fruits, brandy, saffron, lead, quicksilver, barilla, raw silk, indigo, cork wood and corks, leeches, paper, gut for fishing and for guitars, cast-iron, *garbanos* (chick-peas), beans, wheat, flour, silk and woollen manufactures, and thread lace. The white wines of Xerez, in the vicinity of Cadiz, form the principal exports, representing an average annual value of \$2,500,000, and a quantity of 20,000 pipes, of which more than  $\frac{1}{2}$  go to England. The total exports in 1855 were \$18,000,000, and the imports \$8,000,000. The entrances in 1855 were 997 vessels, tonnage 206,000, and the clearances 953, tonnage 215,000. Cadiz has a joint stock bank, and issues its own notes. The manufactures carried on in the city are soap, glass, coarse woollen, cotton, and silk, hats, sugar, and leather. Cadiz is famous for its manufacture of fans, mantillas, gloves, guitars, and sweetmeats or *dulces*. The town is the handsomest in Andalusia, and is divided into 4 quarters, containing 6 great and 23 smaller squares and 260 streets. The *calle Ancha* is the Broadway of Cadiz. The *Alameda* is a fine promenade. The public edifices are not remarkable: 2 cathedrals, ancient and modern, 2 theatres, and a *plaza de toros*. There are some fine paintings scattered about the city. One by Murillo, in the chapel of the convent San Francisco, has a melancholy interest, from the circumstance of the great painter having fallen from the scaffold while painting it, and having died from the fall. Cadiz is the seat of a bishop, of naval and colonial tribunals, and contains 7 churches beside the 2 cathedrals, and 13 convents. There are several hospitals and charitable institutions, a custom-house, an ex-

change, an academy of drawing, a botanical garden, an observatory, and, among other institutions, mathematical, naval, and military schools.—The climate is excessively hot, and the winds of Africa make it frequently very uncomfortable. Cadiz was founded by the Phœnicians, and was the Gades of the Romans. The remains of a Tyrian temple of Hercules, with some other buildings of the ancient city, are still visible at low water. The Arabs conquered the city, which was retaken by the Spaniards in 1262. It has been attacked by the English several times, successfully by Peterborough and Blake. In 1810 it was invested by the French, but they raised the siege in 1812 on the advance of Lord Wellington. In modern times it has always been politically conspicuous for the liberalism and prompt action of its inhabitants in the several crises of the Spanish constitution.

**CADIZADELITES**, a sect of Mohammedans, who receive both the Bible and the Koran, believe that Mohammed is the Holy Ghost, practise circumcision, and drink wine.

**CADMIA**. In working hematite iron ores in blast furnaces, an incrustation gradually collects upon the inner walls in the upper and cooler part of the stack, which, when the furnace is cooled after a long blast, is beaten off with difficulty by hammers and chisels. It is stratified in thin layers concentric with the walls upon which it is attached. Its appearance is that of a rich natural ore of some very heavy metal, and for this it has been mistaken. Its colors are reddish and yellow. On analysis it proves to be a compound of oxide of zinc, which is contained in the iron ore in quantities too small to be detected by chemical researches. In the course of a long blast, as this is continually volatilized, the vapor is condensed in the form described, to which the name of cadmia is given. It is common in the blast furnaces of this country and in those which use hematite in Europe. Dr. Beck gives 2 analyses of this substance taken from the old Ancram furnace of Columbia co., N. Y., which are as follows:

	1	2
Oxide of zinc.....	96.10	95.00
Oxide of iron.....	2.90	4.50
Carbon.....	1.00	0.50

Oxide of lead is also sometimes present when this metal is contained in the ore; and so probably is the metal cadmium, which was first recognized in the similar crust deposited on the sides of furnaces in which zinc ores and brass were treated. The name is derived from the Greek name for zinc ore, given in honor of Cadmus, who introduced the manufacture of brass into Greece.

**CADMIUM** (Gr. *καδμεια*, calamine). The name was formerly applied to the sublimations of zinc and cadmium, which collect as incrustations upon the inner walls of furnaces in the metallurgic treatment of zinc ores and alloys. These are still called cadmia. Cadmium is now the name of a metal which is extracted

from some of the ores of zinc. It is nowhere met with in a native state, nor as a distinct ore, except as the sulphuret, and this is found at only one locality, which is Renfrewshire, Scotland, where it was discovered by Lord Greenock, and for him named Greenockite. It consists of sulphur 22.8, and cadmium 77.7. Its colors are honey and orange yellow. It is nearly transparent, double refractive. Its hardness is 3—3.5; its specific gravity, 4.8; its crystals, short hexagonal prisms. The metal was discovered in 1817, by Stromeyer, in some ores of zinc of upper Silesia. These ores contain 1 or 2, and sometimes 10 per cent. of cadmium. Its presence is recognized by the reddish color of its oxide deposited before the blowpipe upon charcoal, zinc alone leaving a white coating. Cadmium bears a strong resemblance to tin in some of its properties, as in color and lustre. It is a little harder, and requires to melt it a temperature, according to Daniell, of  $360^{\circ}$ , while tin melts at  $442^{\circ}$ . It is ductile, so that it may be drawn out into fine wire or beaten into very thin leaves. Its density when melted is 8.6; when hammered, 8.69. It volatilizes a little above its melting point, hence subliming more easily than zinc, taking fire and burning with a thick smoke of brownish or yellow color without smell. When bent it gives, like tin, a crackling sound. It is susceptible of a beautiful polish, and marks paper like lead. At ordinary temperatures it is unaltered, even in moist air; after a long period a thin grayish pellicle of oxide forms upon its surface and protects it from further change. It dissolves in nitric, sulphuric, and hydrochloric acids a little less readily than zinc. The chemical equivalent of cadmium is 56; its symbol, Cd. Only one oxide of the metal is known, the composition of which is cadmium 87.45, oxygen 12.55; it is formed by heating the metal in contact with the air, and in calcining the nitrate or the carbonate of cadmium. The salts are in general soluble and take crystallized forms. They have no color, but possess a nauseous taste and act as emetics. The sulphuret, precipitated by sulphuretted hydrogen, makes a beautiful and brilliant yellowish red pigment, which is very permanent. If alum is added to the solution, the precipitate will be obtained mingled with alumina. The sulphate is obtained by dissolving the carbonate or the metal itself in dilute sulphuric acid, a little nitric acid being added. It is a salt of similar properties to those of sulphate of zinc, but much more powerful. It is used in medicine as a valuable remedy in the treatment of syphilis, rheumatism, and gout; and in diseases of the eyes it is found of great service as an astringent and stimulant, and is particularly beneficial in the removal of specks and opacities of the cornea.—Cadmium is obtained in a metallic state from compounds containing it by precipitating with a current of sulphuretted hydrogen gas from its strongly acid solutions. Zinc, cadmium, and copper, if present, are thrown down

as sulphurets. These are redissolved in nitromuriatic acid; the metals are precipitated by carbonate of potash or soda; the precipitate is then digested with carbonate of ammonia, which redissolves all the copper and zinc. The insoluble remainder is then washed with water, charged with carbonate of ammonia, and afterward with pure water. It is then calcined, and the oxide is reduced to a metallic state by mixing it with lampblack and carefully heating it. Cadmium may also be obtained by precipitating it from its solutions by means of strips of zinc or iron; but it is then always necessary to redissolve and purify it, to obtain it free from zinc and copper. In preparing cadmium in a large way, in working the zinc ores by the process adopted in Silesia, the cadmium, more volatile than the zinc, separates entirely from the ore during the first 4 hours of its distillation. This collects as a yellowish brown oxide, and is found mixed with the white oxide of zinc, which separates in the early part of the process. The browner parts of these sublimations are collected and mixed with  $\frac{1}{4}$  their weight of coke. They are then heated at a moderate temperature in a muffle, which is furnished with a sheet-iron neck, kept constantly cool by a current of air. The zinc that comes over first condenses in the upper part of the neck, and the cadmium, which is more volatile, is deposited as a yellowish oxide further from the muffle. The escape of the very volatile cadmium vapor is prevented by a wooden stopple in the extremity of the neck, through which a very small opening only is made for allowing some gas to escape. The oxide of cadmium, thus obtained separate from the oxide of zinc, is mixed with pulverized charcoal and introduced into a cast-iron retort, which is moderately heated. The metal volatilizes and condenses in little drops in the cool neck of the trough. It is then remelted with a little resin and cast in moulds of sand into small cylindrical bars. This is a perquisite of the master founder, and is worth \$6 per lb. It still contains a small proportion of zinc, from which it may be separated in the wet way. The production of cadmium at the great zinc works of upper Silesia has amounted for some time past to only about 1,100 lbs. per annum. If it were not for its rarity and high price, it might be employed to advantage for the same purposes as tin.

CADMUS, a mythological king of Thebes, son of Agenor, king of Phœnicia, and brother of Europa, who is said to have introduced into Hellas the 16 simple letters of the Greek alphabet. He left his native country in search of his sister Europa, who had been borne off by Jupiter. On making inquiry of the Delphic oracle as to what state he should choose for settlement, he was advised to follow a heifer which would meet him. Cadmus found her in Phœcis and followed her into Boeotia, where she sank down on the spot which Cadmus called Cadmea, and which became the citadel of Thebes. He sent some of his company to

draw water from a well sacred to Mars. This well was guarded by a dragon, which slew the intruders. Cadmus slew the dragon, and was directed by Minerva to sow the monster's teeth. He did so, and a host of armed men immediately sprang from the ground, who were called the *Sparti*, or the Sown. These were about to turn upon Cadmus, but the latter threw a stone amid them, and a fight ensued which did not cease until all were slain, except 5. These survivors became tractable and helped Cadmus to build the new city. Cadmus was honored as the founder and patron of Thebes. To recompense him for his perils the gods gave him Harmonia, the daughter of Mars and Venus, for a wife, and honored their nuptials with their presence and with gifts.

CADODAL, Georges, the leader of the Chouans or Breton rebels in the French revolution, born at Kerléano, in lower Brittany, Jan. 1, 1771, guillotined in Paris, June 25, 1804. He was educated at the college of Vannes, and at first shared in the reformatory hopes which the revolution inspired; but the attempts of the assembly against the liberty of the church gave a shock to his religious sentiments, and set him in opposition to all the new ideas. With 50 of his compatriots he joined, in 1793, the Vendean chiefs at Fougères. He was soon arrested and thrown into prison, but escaped in the disguise of a sailor, and became formidable at the head of an army of Chouans. After the disaster of Quiberon, he united the remains of the royalist troops, but was unable to make progress against the republican army under Hoche. By his efforts the insurrection was renewed in 1799, but without success, and he was obliged to flee to England. He was received with distinction by the English government, and by the count of Artois, who made him lieutenant-general, and bestowed high titles upon him. In 1803 he returned to Paris, with several other officers, with the design of overthrowing the government. His plot was revealed, and all the efforts of the police were immediately directed to his discovery. He was arrested attempting to leave Paris by a covered carriage, first, however, shooting 2 of the police, and shortly after was adjudged guilty of an attempt upon the life of the emperor. He showed great courage to the last, avowing himself to be the head of the conspiracy, and avoiding most carefully to compromise any of his partisans. His conduct excited the admiration of Napoleon, who would gladly have pardoned him, but the persistent refusal of Cadodal to recognize him as emperor of the French did not allow the bestowal of any favor upon him.

CADRITES, a mild and pious sect of Mohammedans, who meet once a week, and spend the night in a rotatory sort of dance, keeping their hands joined, and each repeating the attributes of God; during which one of them plays softly on a flute. They never cover their feet or heads, and never cut their hair.

CADUCEUS, the magical wand which

Mercury received from Apollo in exchange for the lyre. This wand was able to put an end to strife the moment it was thrown between the parties at variance.

CADWALLADER, JOHN, an officer in the war of the American revolution, born in Philadelphia in 1743, died Feb. 10, 1786. He was a member of the Pennsylvania convention in 1775, and at the commencement of the war was commander of a volunteer company, nearly all the members of which subsequently became officers in the army. In 1777 he was appointed by congress a brigadier-general, and took part in the battles of Princeton, Brandywine, Germantown, and Monmouth. He commanded one division of the army in the attack upon Trenton, but was prevented by the ice from crossing the river in season to engage in any thing but the pursuit of the defeated enemy. The intrigues of Gen. Conway against Washington occasioned a duel between him and Gen. Cadwallader. The latter was, after the war, a member of the assembly of Maryland.

CÆCILIUS STATIUS, a Roman comic poet, contemporary of Ennius, and the immediate predecessor of Terence, died 168 B. C. Of his works there remain only a few fragments, and the titles of 40 of his dramas, which indicate his resemblance to the Greek writers of the new comedy. He was highly esteemed by the Romans, and placed in the first rank of comic poets with Plautus and Terence.

CÆCUM (Lat. *cæcus*, blind), a name given in the higher animals to that portion of the intestinal canal into which the small intestine enters; properly speaking, it is the enlarged commencement of the colon. The cæcum is situated in the right iliac region, and is of an irregularly triangular shape, pouched, about 3 times as voluminous as the small intestine which opens into it, and about 3 or 4 inches in extent between the ileum and colon; in front, it is in relation with the abdominal walls; behind, it rests upon the right psoas and iliac muscles, and internally it is in contact with the small intestine. Externally it presents 3 irregular prominences or divisions, separated by longitudinal depressions, 1 anterior and 2 posterior; it has also many fatty appendages contained in folds of the peritoneum; at its lower part, to the left side and in front, is the vermiform or cæcal appendix, cylindrical, sinuous, about the size of a goose-quill, from 2 to 4 inches long, with a cavity communicating with the cæcum. Internally it presents 3 depressions corresponding to the external constrictions which separate them. Beside the opening of the vermiform appendix at its lower portion, on the left side is the ileo-cæcal or Bauhin's valve, guarding the outlet of the small intestine; this valve is elliptical, transverse, formed by a fold of the mucous membrane with two lips, the lower of which contains evident muscular fibres. The cæcum has the usual 3 coats of the intestinal canal; the serous or peritoneal membrane envelops it, except on a small portion of its upper surface; the muscu-



lar coat is composed of the usual circular fibres, and of longitudinal fibres forming 8 bands somewhat shorter than the cæcum, and therefore corrugating it into folds; the mucous membrane has many mucous follicles, few villousities and no proper *valvula conniventes*; the appendix has the same structure as the cæcum. The small intestine is not simply continuous with the larger, but opens into it at right angles to its axis, and at some distance from its commencement; this arrangement leaves a portion of the intestine in the form of a pouch (hence the name *cæcum*), anatomically below the ileo-cæcal valve, but physiologically or in the course of the food, above it; there is no definite limit between the cæcum and the ascending colon. From its situation and structure the cæcum is susceptible of considerable dilatation; in its natural condition the muscular contraction of its fibres is sufficient to close the lips of the valve, and to shut off all communication with the ileum; the office of this valve is evidently to prevent the regurgitation of the digested matters into the small intestine, at the same time that it allows a free passage in the opposite direction; from its projection inward, the greater the disposition of the contained matters to pass backward the closer would the lips of the valve shut, except in the rare cases where the small and large intestines should be fully distended from an obstruction below the valve. The use of the cæcum is evidently that of a receptacle in which the digested matters may be delayed before passing into the colon, for the final extraction of any remaining nutrient materials; its shape, size, and direction adapt it for this, and comparative anatomy goes to prove it; in carnivora, whose food is fully digested in the upper portion of the alimentary canal, the cæcum is very small; while in the herbivora, whose vegetable diet requires a longer digestion by a much slower process, this organ is largely developed; it is probably true that a habitual vegetable diet in man causes the enlargement of the cæcum. The use of the vermiform appendage is unknown; it is generally considered homologous with the cæcal appendages found in the lower animals, especially in birds; foreign bodies, as seeds and shot, are sometimes caught in this appendage, where they may excite inflammation and perforation, causing fatal peritonitis. When the product of digestion reaches the cæcum, it generally contains little more than innutritious, and insoluble and excrementitious compounds; the contents of the canal from alkaline now become acid; by some it is supposed that the acid is secreted by the numerous glands of the part for the more complete solution of any remaining indigested albuminous matters; this was the opinion of Tiedemann and Gmelin, and of Schultz, who believed that in the cæcum a second digestion is accomplished, in a measure proportioned to the activity and completeness of the stomachal digestion; and this view was confirmed by the large size of this organ in herbivora, in which digestion is very far from

being finished in the stomach; but from the experiments of Blondlot it would seem that the lactic acid of the cæcum is rather the product of the transformation of saccharine substances, subservient, nevertheless, to the complete digestion of albuminous matters. In the invertebrates, as in the cephalopoda, the intestine often has cæcal appendages, secreting a fluid, which have been regarded as a rudimentary pancreas.—Fishes have no cæcum, but sometimes cæcal appendages high up; in frogs and toads there is a cæcum into which the small intestine opens laterally, with or without a valve; in some ophidians the large intestine is divided into pouches, the upper of which is comparable to a cæcum; in the crocodile there is no cæcum, but a valve between the small and large intestine; both are generally present in turtles.—Birds, without having a proper cæcum, have usually 2 cæcal appendages near the commencement of the large intestine; these vary in size from mere rudiments in the goose to processes 8 feet long in some gallinaceous birds; sometimes there is only one, as in the invertebrates and lower vertebrates.—In mammals the cæcum is usually large in proportion to the vegetable nature of their food; in the carnivora it is very small; in the insectivora, cheiroptera, and in hibernating animals generally, it is absent; in the edentata it is usually wanting, but there are cæcal appendages opening into the confines of the small and large intestines, which are not very distinct; in ruminants, pachyderms, and solipeds, the cæcum may be said to be enormous, being 2½ feet long in the horse, and 8 times as capacious as the stomach; and, in the Cape hyrax, provided with 2 additional cæcal appendages; in some rodents it is very large and subdivided by circular folds, and in the beaver is 2 feet long; in the carnivorous marsupials it is wanting; in the insectivorous small; and in the herbivorous 2 or 8 times as long as the body, and the wombat is said to have also a vermiform appendix; in the ornithorhynchus a small cæcum separates the small from the large intestine; in the herbivorous cetacea the cæcum is present, in the carnivorous generally absent; in the quadrupeds the cæcum exists, and in the apes there is a well-developed appendix. The situation and physiological office of the cæcum render it liable to many diseases; its mucous membrane is subject to acute and chronic inflammation, to ulceration, to perforation; its size and extensibility make it a favorite part for the lodgment of hardened feces in cases of dyspepsia, constipation, and loss of tone in its coats; it is a common locality for the imprisonment of gases, especially in typhoid fever, in which disease the gurgling movement of air and fluids in the right iliac region is characteristic in certain stages. Inflammation of the appendix and its possible consequences have been alluded to; with this exception, its presence or absence seems to be of no consequence; it is occasionally wanting, or transformed into a solid cord,

or enormously long and convoluted, or variously displaced and adherent to neighboring parts, without any apparent disturbance of the digestive functions.

CAEDMON, the first Anglo-Saxon poet, died A. D. 680. He was a swine-herd to the monks of Whitby, and never gave evidence of any poetical talent until one night a vision appeared to him, and commanded him to sing. When he awoke, he found the words of a poem in praise of the Creator of the world impressed upon his memory. This manifestation of talent obtained for him admission into the monastery at Whitby, where he continued to compose devotional poems. An edition of his paraphrase of parts of the Scriptures was printed at Amsterdam in 1655, edited by Junius. Thorpe published an edition of it (London, 1832) for the society of antiquaries. It has been said that Milton took some ideas of "Paradise Lost" from the poems of Caedmon. It is certain that they were very popular among the English and the Saxon part of the Scottish nation, and furnished plentiful materials to the makers of mysteries and miracle plays. The only manuscript of Caedmon extant is to be found in the Bodleian library at Oxford.

CÆLIUS AURELIANUS, a Latin physician, who is generally supposed to have been a native of Numidia, and to have flourished in the 3d century of the Christian era. He was a member of the sect of the Methodici, and the author of a medical work still highly esteemed. In this work, Cælius divides diseases into 2 great classes, the acute and the chronic, to the former of which classes he devotes his first 8 books, and to the latter the remaining 5.

CÆLIUS MONS, one of the 7 hills on which Rome was built. It is not known by which of the first 4 kings it was added to the city. It is said to have received the name of Cælius from Cælius Vibenna, an Etruscan leader, who settled on it.

CAEN, the chief town of the department of Calvados, France, pop. in 1856, 41,894, on the Orne, 10 m. from its mouth. It was indebted for its importance to the dukes of Normandy, who surrounded it with massive walls, flanked with towers, and erected a castle for its protection. William the Conqueror built here a large church, known as the *abbaye aux hommes*, or St. Stephen's church, where he was buried; while his queen, Matilda, was the founder of another church, the *abbaye aux femmes*, or Trinity church, the elegant architecture of which is a perfect contrast to the austere severity of the former. Under the conqueror and his successors, Caen grew wealthy through its trade and manufactures. Its prosperity continued under the French kings; so that in 1848, when, a short while before the battle of Oreey, it was taken by King Edward III. and the black prince, and given up to plunder, the English found it, according to Froissart's account, "large, strong, and full of drapery and all sorts of merchandise, rich

citizens, noble dames, damsels, and fine churches;" and their fleet returned home laden with its spoils. A second time, in 1417, Caen was taken by the English, and King Henry VI. founded there a university, which became celebrated. In 1450 it surrendered itself to Dunois, and was renowned for its loyalty to the French kings. It suffered a good deal during the civil and religious wars of the 16th century, being, in 1562, pillaged by a party of Huguenots. The revocation of the edict of Nantes (1685) inflicted a deadly blow on its manufactures, by banishing its most skilful artisans. During the revolution, on the fall of the Girondists, May, 1793, several leaders of the party repaired to Caen to organize a revolt against the convention, but were soon put down by the revolutionary forces. From here also Charlotte Corday set out to Paris to assassinate Marat. In more recent times the streets of the city have been enlarged and straightened; squares, the most magnificent of which is that called Louis XIV., have been opened; the castle has been partly demolished, and the portion of it that still remains is a prison; the walls have nearly disappeared, and fine promenades have been planted, the principal being called Grand Cours and Cours Cafarelli, by the side of the Orne; but the most important monuments and institutions have been preserved. Beside the 2 churches above mentioned, that of St. Peter, near the centre of the town, is noticed for its beautiful spire. The university of Henry VI. has become an academy dependent on the French university. The conventual buildings adjoining the *abbaye aux hommes* have been converted into an imperial college, numbering about 800 students. There are beside a secondary school of medicine, a school of hydrography, a public library, containing about 50,000 volumes; a botanical garden, with a good collection of plants; museum of pictures and natural history; a school for the deaf and dumb, and several other learned and charitable institutions. Caen is a favorite resort for English families, English service being regularly performed in a French Protestant church. The lace manufactures are the most important, and are said to occupy 20,000 women and children in and about the town. It is also famous for the manufacture of Angora gloves, great numbers of Angora sheep being reared in the vicinity. The town is an entrepot for salt, and has an extensive coasting and export trade in paving, granite, and building stone. (See CAEN STONE.) Several large fairs are held for the sale of the industrial and agricultural produce of the country. The women of Caen are said to be handsomer than in most other parts of France, and their beauty is still enhanced by the originality of their tall, white Norman head-dress, ornamented with lappets behind, and sometimes with lace. Caen is connected with Paris by a railway, which passes Lisieux, from whence a branch leads to Honfleur. A railway to Bayeux, and from thence to Cherbourg, is in course of construction, and one to

Alençon is projected. A canal, connecting Caen with the ocean, which cost \$1,800,000, was completed in Aug. 1857. The port admits vessels of 150 to 200 tons. In 1854 Caen owned 92 vessels, of an aggregate tonnage of 7,546, and a steamer of 43 tons. The entrances of foreign vessels amounted to 1,374 in 1853, 82,113 tonnage, and the clearances to 1,089, 61,646 tonnage. Malherbe, Auber, the composer, and other eminent persons, were born here, and Bean Brummell and Bourrienne, Napoleon's secretary, both died here in the same hospital for lunatics.

**CAEN STONE**, a soft cream-colored or light yellow sandstone, which is quarried near the above-described city. The stone, from its soft shade and even grain, and the ease with which it is worked, is highly esteemed for building purposes. It is exported in large quantities, and some of it finds its way to this country. The Nassau Bank in New York city is built of it.

**CAER CARADOC**, or **CRADOCK HILL**, an eminence near the confluence of the rivers Olun and Teond, in Shropshire, England, at the top of which traces of the camp in which Caradoc was besieged by the Roman general Ostorius are still visible.

**CAERLEON**, a market town of Monmouthshire, England, 162 miles from London, possesses much antiquarian interest. It is believed to have been the capital of Wales, and was an archbishopric soon after the introduction of Christianity in Britain. It was a Roman station (*Ioca Silurum*). A space of ground which has received the name of Arthur's Round Table, is believed to have been a Roman amphitheatre. There are also remains of an ancient castle, and various antiques have been found. A building has been erected as a museum of antiquities. There are places of worship for the Wesleyans, Primitive Methodists and Baptists, and the parish church has a tower of early English style. Pop. 1,281.

**CAERMARTHENSHIRE**, or **CAERMARTHENSHIRE**, a county of South Wales, Great Britain, contains 947 sq. m.; pop. 110,682. It is a mountain district, the highest hill being 2,596 feet high. The principal river is the Towy, a stream of great resort for beautiful scenery and angling. Another river, the Taff, is also dear to excursionists. They are small streams, not over 50 miles in length.—Iron, lead, coal, and limestone are the chief mineral productions. Caermarthenshire was the scene of the final struggle for Welsh independence under Llywelyn, last of the princes. The disturbed state of the Welsh marches for many years compelled the erection of baronial castles, of which there are many remains in various degrees of preservation.—The chief town of the county is Caermarthen, a parliamentary borough, 245 miles from London by rail. It is beautifully situated on the Towy, a few miles from the bay of Caermarthen. The town is irregularly built and the streets narrow, but the inequalities of the site give an air of picturesqueness to the

place. There are some ancient remains about the town and in the neighborhood. Steele the author was buried in the parish church of St. Peter. General Picton, one of the heroes of the Peninsular war, and Lord Nott, the Indian general, were born here. Caermarthen possesses a grammar-school, a Presbyterian seminary, a South Wales training college, national British and infant schools, an infirmary, and a literary and scientific institution. The inhabitants are occupied in tin works and iron foundries; and fishing, chiefly of salmon and sewin, is carried on with drag-nets in coracles, a kind of small boats known to the ancient Britons. An active coasting trade is carried on with Bristol. The principal exports are timber, marble, bricks, slates, lead ore, bark, grain, eggs, and butter. Pop. 10,524.

**CAERNARVON**, **CAERNARVON**, or **CAERNARVONSHIRE**, a county in the northern part of Wales, bounded on the W. and N. by Caernarvon bay and the Menai strait. It has an area of 579 sq. m., and its population in 1851 was 87,870. The surface is mountainous, and is traversed by some of the loftiest ranges in Britain. One-half of the land is barren, but the valleys produce oats and barley. The rearing of cattle and sheep affords employment to many of the inhabitants, and there are mines of copper, lead, slate, and coal, which are worked with some profit. The county is divided into 10 hundreds and 71 parishes.—**CAERNARVON**, or **CAERNARVON**, the capital of the above county, is a parliamentary and municipal borough and seaport town, on the E. side of the Menai strait. The town is defended by a wall and surrounded by suburbs of double its extent, within the limits of which are numerous handsome villas, bathing establishments, and a terrace walk along the strait, terminating in a pier. In the vicinity are also the seats of the marquises of Anglesea, Lord Newborough, Lord Boston, &c., and the site of the ancient Roman station of Segontium. At the W. end of the town stands a magnificent castle, built by order of Edward I.; over the principal gateway is a statue of its founder. The castle and yard together occupy a space one mile in circuit. In a part of the edifice called the "eagle tower," Edward II., the first Anglo-Norman prince of Wales, was born. Caernarvon has a harbor which will admit vessels of 400 tons burden, but its trade is chiefly carried on by small craft and by steamers running to Liverpool. Slate and coal, the former brought by railway from quarries ten miles distant, are the principal exports. Pop. in 1851, 8,674.

**CÆSALPINUS**, **ANDREAS** (**ANDREA CESALPINO**), an Italian physiologist, born at Arezzo, in Italy, in 1519, died Feb. 23, 1603. In his youth he manifested little inclination for study, and still less for the approved scholastic methods of it, and received frequent chastisement from his masters. A change of discipline, however, an appeal to his ambition and an indulgence to his independence, called forth the powers of

his genius. He rose above his fellows, and soon discomfited his teachers in discussions which he raised upon matters in every branch of learning. He is first mentioned in public life as a professor of botany in the university of Pisa. He was subsequently made chief physician to Clement VII., and lived during the remainder of his life at Rome. He published works upon botany, mineralogy, medicine, and the highest questions of philosophy. In his first publication, entitled *Spēculum Artis Medicæ Hypocraticum*, his knowledge of the system of the circulation of the blood is stated in the clearest manner. The following passage is taken from the second chapter of its first book: "For in animals we see that the nutriment is carried through the veins to the heart as to a laboratory, and its last perfection being there attained, it is driven by the spirit which is begotten in the heart through the arteries and distributed to the whole body." The system accepted since the time of Harvey could hardly be more definitely or accurately stated. Similar passages are found in other of his writings. His philosophical speculations are contained mainly in his *Questiones Peripateticæ*. This work had great success, especially after it had been violently attacked by Parker, archdeacon of Canterbury, and after a Frenchman named Tarel had gone through with what he called the alpine task of refuting it. The philosophy of Cæsalpinus was scholastic Aristotelianism, with a leaning toward some of the methods and doctrines of the later transcendental or absolute systems. He reduces the world to the simplicity of two only substances, God and matter, and he makes all finite intelligences, all human, angelic, and demoniac souls, to belong to the latter element. Two things are remarkable about his system: 1, the boldness of speculation, unparalleled in his age, with which he seeks a purely scientific view of the universe; and 2, its entirely materialistic character, which must be attributed, at least in part, to the spirit of the time in which he lived. Most kindred philosophic efforts in more modern times, that of Spinoza for instance, have been founded on a more spiritual principle.—But more important than either his anticipation of Harvey's discovery, or his speculative opinions, were his botanical labors. He was styled by Linnaeus the first orthodox or systematic botanist, and his work on plants was a hand-book to Linnaeus in all his classifications. Botany in the time of Cæsalpinus was the popular witchcraft: as a science, it consisted in a mass of erudition about the imaginary but marvellous virtues of plants. Cæsalpinus sought successfully to transfer it from the realm of magic to that of science. He proposed the basis of classification upon which the whole system of Linnaeus rests, namely, the distinction of plants in their parts of fructification. He even, to considerable extent, carried out the principle of the system practically, and defined many classes and orders as they remain in the Linnæan ar-

range. Cæsalpinus lived quietly to an old age at Rome, submitting all his speculations to the supremacy of the church, and presenting in his life an example of every virtue.

CÆSAR was the name of several members of a Roman patrician family, of the *Julia gens*, who traced their origin from Iulus, son of Æneas. Made glorious by Julius Cæsar, it was assumed by his adopted son, Augustus Octavianus, and handed down to Tiberius, Caligula, Claudius, Nero, who were, either by adoption or by female descent, still members of the same family, and retained as a name of dignity by their successors of other families. When Hadrian shared his throne with Ælius Verus, he dignified him by the title of Cæsar, which was, after the division by Diocletian, that of the second persons or reigning princes of the empire, chosen by the Augusti. It is the origin of the German Kaiser (emperor), and the Russian czar.

CÆSAR, CAIUS JULIUS, of whom no one writes without quoting the line of Shakespeare,

The foremost man of all this world,

was born precisely 100 B. C., and lived 56 years. The month in which he was born (*Quintilis*) was named July (*Julius*) after him, and the 12th day of that month was his birthday. His father, of the same name, was of prætorian rank, and his mother belonged to the family of Aurelius Cotta. From the earliest age Caius Julius gave evidence of the most extraordinary endowments. He was quick to learn, of wonderful memory, the liveliest imagination, and indefatigable diligence. In his 17th year, having been married to one Cossutia, he procured a divorce in order to marry Cornelia, a daughter of Cinna, then a leader of the democratic party. His aunt Julia had previously married Marius, another great democratic chief; and thus by a double connection Cæsar was brought upon the popular side. Sylla was the master-spirit of the patricians or aristocrats, and, discerning the superiority of the young Cæsar, sought to detach him from the party he had adopted, by persuading him to repudiate his wife. Cæsar, with a spirit which showed the intrepidity of his character, refused to take the advice of the all-powerful Sylla, whereby he incurred his resentment. Sylla stripped him of his wife's dowry, of the fortune he had inherited, and of the office of flamen dialis (priest of Jupiter) which he held. Cæsar deemed it advisable, in this emergency, to quit Rome, and escaping the satellites of Sylla, who tracked him in his flight, he took refuge with Nicomedes, king of Bithynia, in Asia Minor. Suetonius, who was a garrulous court-gossip, tells some scandalous stories of Cæsar's licentious relations with Nicomedes, which only a vulgar mind could repeat or believe. Municius Thermus was then prætor in Asia, and procured Cæsar to conduct a siege of Mytilene which he did with remarkable energy and success, although but 22 years of

age. The death of Sylla allowed him to return to Rome, where he indicted Dolabella for extortion in Macedonia; but the senate, which was the jury, saved its friend and partisan. In the attempt of *Æmilius Lepidus* to overthrow the senatorial oligarchy, however, he did not take part, having sagacity enough, doubtless, to see that the time had not yet come. Beside, the credit he had gained as an orator in the case of Dolabella put him on the design of cultivating eloquence, for which purpose he set out for Rhodes, to receive the instructions of *Molo*, who, a year or two before, was *Cicero's* teacher. On the way thither he was captured by a band of Cilician pirates, who detained him 88 days. They asked a ransom of 80 talents (over \$80,000), which he had laughed at, saying that if they knew who he was they would demand 50. He consented to pay it, but told them that if he ever caught them afterward, he would crucify every mother's son of them. Arrived at the island of *Delos*, he was set on shore, and paid the ransom; but he immediately organized a small fleet, sailed in pursuit of them, came up with and captured them, and taking them to land, reported their case to the Roman proconsul. But while that magistrate was considering what was to be done, *Cæsar* remembered his threat, and executed the whole gang. He then went to his lessons.—In the year 74 B. C., hearing that he had been chosen one of the pontifices, he returned to Rome, and for a while led a life of pleasure, some say of gross debauchery, winning the good opinion of the people by his affable manners, and a careless, open-handed generosity. In 69 B. C. he was chosen a military tribune, and 67 B. C. a quaestor, in which office he delivered a panegyric on his aunt *Julia*, the wife of *Marius*, and he also caused the bust of *Marius* to be carried in procession, for the first time since the dictatorship of *Sylla*. While he was quaestor he also served in Spain, rather distinguishing himself by his military capacity. In 65 B. C. he was elected *ædile*, and this office, being connected with the public entertainments, gave him an opportunity to display his taste for magnificence. He raised statues to *Marius*, enlarged the theatres, and gave splendid games and festivals. He came out of it several millions of dollars in debt. During his *ædileship*, 63 B. C., the conspiracy of *Catiline* was discovered, and *Cæsar* was suspected of complicity in it; but he had probably too much good sense to involve himself in so desperate and crazy an undertaking; the objects and importance of which, moreover, have been greatly exaggerated by *Cicero*. When the matter came up in the senate, a year later, he effectually quashed such tales. He defended the conspirators, however, from the punishment of death, holding that it would be wiser to scatter them, and keep them under strict guard. At the same time he was aspiring to the place of *pontifex maximus*, one of considerable influence and emolument. *Catulus*, an opposing candidate, offered to pay his

debts if he would withdraw, but *Cæsar* replied that he would borrow more money than that if it were necessary to his success. On the day of election he remarked to his mother that that day would see him either the chief priest of Rome or a dead man. He was elected, getting more votes from the tribes of his opponents than they did themselves. The next year he became prætor, and, on laying down that office, was transferred, as was the custom, to the government of a province. He selected Spain; but before he departed, his creditors seized him, and his friend *Crassus* had to become his security to the amount of nearly \$5,000,000. He achieved not a little military success in Spain in a cruel war against the native tribes, and then hurried back to run for the consulship, the first office of the republic. He was chosen, and administered the government with unexampled vigor. His colleague was *Bibulus*, who attempted in the outset to check him in his objects, but in a short time *Bibulus* was so completely outmanaged that the Roman wits used to say that the two consuls were *Julius* and *Cæsar*. He restrained the unconstitutional powers of the senate, procured the passage of a law for the distribution of lands among the poorer classes, gained the favor of the equestrian order by releasing it from an oppressive contract, and made himself an immense favorite with the people. It was then that he formed his coalition with the great *Pompey* and the immensely rich *Crassus* which is known as the *triumvirate*.—At the close of his term, he was given the government of *Cisalpine Gaul*, with *Illyricum*, for 5 years; and the senate, the more effectually to get him out of the way, added *Transalpine Gaul* (France) to the charge, 59 B. C. This opened a new career to *Cæsar*; he had hitherto served in civil employments chiefly, but was now to engage in a labor which would test his military talents. The Romans were asked to settle the disputes of the Gallic tribes, warring among each other for the ascendancy, and also to help them repulse the *Suevi* (Germans), who were beginning to invade and lord it over the country. *Cæsar* took the matter in hand, drove off the Germans, quelled several revolts of the Gallic tribes, and finally determined the subjection of the province. In 8 years of bloody and brilliant struggles, during which his term was prolonged for another 5 years, he reduced the whole of Gaul, crossed the Rhine twice, and landed, the first of the Romans, twice in Britain. *Pompey*, his great rival, now procured a law recalling *Cæsar*, who refused to obey, and was threatened with being declared the enemy of the republic. The tribunes of the people refused to confirm the decrees, when the senate, treating their negative with contempt, outlawed *Cæsar*, and directed the consuls "to provide for the safety of the republic." The tribunes repaired to *Cæsar*, who had now by means of their accession got the law on his side, and he immediately passed the *Rubicon*, a small stream

separating his province from the territories of the republic, in order to march upon Rome. This act was equivalent to a declaration of war against the senate, who prepared for their defence. Pompey acted as their commander-in-chief, but the popular feeling soon manifested itself so decidedly in favor of Cæsar, that the senatorial party ran off to Greece. Cæsar pursued them there; and then for years a war raged which led Cæsar into Spain, "to defeat the army without a commander before defeating the commander without an army;" all over Italy; into Thessaly, where the great battle of Pharsalia, or Pharsalus (48 B. C.) decided for him against Pompey; to Egypt, where he wept at the sight of the head of his great rival, treacherously killed there, and where he decided in favor of the charming Egyptian woman, the dispute for the throne between the last Ptolemy and Cleopatra; into Pontus, against Pharnaces, son of Mithridates, where he could say *veni, vidi, vici*; into the province of Africa, where he defeated M. Scipio, but could not conquer Cato, who preferred, at Utica, a noble death to life under the rule of a single man. The details we cannot give; but the one grand result was that Cæsar was proclaimed by popular gratitude dictator for ten years. The rapidity of his marches, the energy of his battles, his mastery of resources and men, indicated him as the only person living capable of controlling and ruling the boundless and turbulent state. He set to work reorganizing the nation, though perpetually interrupted by the remains of the senatorial party. The sons of Pompey rose against him in Spain, which compelled him to go thither and crush them (at Munda 45 B. C.); on his return, he was hailed as imperator, and invested with sovereign powers; the appellation of *Pater Patriæ*, "the father of his country," was voted him; the coins were stamped with his image; and he was allowed to wear at all times a crown of laurel on his head. This excess of subservience on the part of the multitude, won and deluded by his triumphs, and his more than kingly show and extraordinary liberality, kindled anew the jealousy of the aristocratic faction, and must have disgusted all the more moderate. But the gross flattery of the new and servile senate carried matters to a still higher pitch of adulation. They ordered the statues of Cæsar to be carried in the processions along with those of the gods; they dedicated temples and altars to him, and appointed priests to superintend his worship. Cæsar is said to have been pleased with these impious homages; yet the story is inconsistent with another, which represents him as eager to procure the title of king; he that was already a god, need not have cared about an inferior title. At any rate, the latter story was believed, and a number of young patricians availed themselves of the Roman aversion to a monarchical title as a cloak to a design for Cæsar's assassination. Cains Cassius was the ostensible leader of this conspiracy, assisted by the stern Brutus, who was persuaded to sacrifice his benefactor,

as his ancestor sacrificed his sons, to the republic, not reflecting that it was easier to save a young than a decaying and corrupted state. Cæsar was absorbingly engaged in his reforms of the government, and in the endeavor to consolidate the public order, to which end he had projected and partly executed several vital measures. While thus restlessly engaged he was, though warned, it is said, by signs and dreams, surprised by the blows of the conspirators on the ides of March (44 B. C.); wrapped in his toga, he sank, covered with wounds, at the foot of the statue of Pompey; and Rome was again plunged into civil war, and became a prey to the profligate Antony and the selfish Octavius. The heads of the conspiracy, Brutus and Cassius, fell at Philippi (43 B. C.).—As a general Cæsar stands in history among the first, having no equal except the modern Napoleon; as a statesman, the highest rank is conceded to him; as an orator he was compared to Cicero; and as a writer, he surpassed Xenophon, and was only less than Tacitus. He was what the Germans call "a many-sided man," touching life by every fibre, and great in every thing that he touched. Beside his masterly "Commentaries," the memoirs of his own life, he wrote on grammar and on rhetoric; he wrote tragedies, satires, and lyrics; he reformed the calendar as well as the state; and all the accounts agree in representing him as the most perfect gentleman of his day. In one thing, however, he was deficient; his moral sensibility was not equal to his intellectual acuteness or to his force of will; and the record of his life is stained by acts of profligacy, by cruelty, and by a terrible and needless waste of human life. In person, Cæsar was tall and spare; his face was generally pale, his body weak and subject to epileptic fits; and it was his mind alone which made him master of the world. He was extremely nice in all his tastes, but not fastidious; amiable and courteous, but very decided; careful of the feelings of his friends and generous to his enemies, except when he deemed those enemies incorrigible, when he became as stern and remorseless as an oriental tyrant. Niebuhr calls him a "demoniac man," driven restlessly onward by the impulses of his genius, vastly in advance of all his contemporaries, but at times sinking himself, through ambition, to their level.—His great works are the *Commentarii de Bello Gallico* and *de Bello Civili*. The first is in 7 books, containing the incidents of as many campaigns; an 8th book was afterward added by another hand; it contains an account of his actions while in Gaul, during which time he invaded Britain and Germany. The second describes his contest with Pompey until the time of the siege of Alexandria. It is not known when he published the first, but it was probably about 51 B. C.; the second was published 47 B. C. Both these works were written immediately after the events occurred, and are therefore important as authorities; they contain much geographical and military information,

especially the latter; so much so that Napoleon consoled himself at St. Helena by studying the marches and exploits of this great commander. His style is noted for its simplicity, naturalness, and purity, for which qualities nothing in the Latin language can be compared to it. Cæsar's veracity has been called in question by Asinius Pollio (Suetonius, 56), and by several writers afterward; Schneider, particularly, advances the opinion that the object of his first work was political, to give the public a favorable idea of his talents, and to confound the plans of his enemies who were attempting to destroy his popularity; and of the second to appease the anger of the partisans of Pompey, who considered him the support of all true patriots. This opinion has been very ingeniously maintained, but the greatest difficulty is to reconcile it with the simplicity of Cæsar's style. Cæsar is mentioned in terms of unqualified praise by Cicero in his "Brutus." Tacitus also, in his "Germania," calls him *summus auctorum diuus Julius, auctor* here, as frequently in the classics, meaning "historian." The genuineness of these "Commentaries" has also been questioned. Julius Celsus, at Constantinople, published an abstract of Cæsar's Commentaries, from which arose the report that he was the original author; it is without foundation, as there is a previous Greek translation of Cæsar by Planudes. Many think, and with reason, that Cæsar wrote a diary; Servius has a passage which is not in our copies, under the title of "Ephemeris," and Plutarch has one under the same title which has come down to us, showing that some thing of the kind was written by him. He left some orations, letters, apophthegms, a treatise on Analogy, Anticato, &c., all of which are lost, except the letters which are preserved in the works of Cicero. The supposed author of the 8th book, and also of the additions to the civil war, is Aulus Hirtius, a legatus of Cæsar, who died 1 year after him at Mutina (now Modena), where both the consuls Hirtius and Pansa were slain. It has been thought that Hirtius wrote the *Bellum Hispanicum*, but the style shows it to be the work of a different hand. The ancients had something very nearly resembling our newspapers, in what were called *acta*; they originated during the consulship of Cæsar, 59 B. C., who first published the proceedings of the senate; these were continued until the time of Augustus, whose policy forbid the publication of these proceedings, although a private register was kept; he allowed, however, the public acts of the people to be published. There have been many editions of Cæsar's works; the *editio princeps* was published at Rome in 1469, being, therefore, among the earliest of printed books; a good edition is that of Oudendorp, Stuttgart, 1822; and of Herzog, Leipzig, 1831-'34.—The ancient authorities for the life of Cæsar are the biographies by Suetonius and Plutarch, the letters and orations of Cicero, and the histories of Dion Cassius, Appian, and Vel-leius Paterculus.

CÆSAR, SIR JULIUS, an English civilian, born at Tottenham in 1557, died April 28, 1636. He was educated at Oxford, and studied in the university of Paris, where, in 1581, he received the degree of D. C. L. He was appointed to high offices under Queen Elizabeth, and under James I. was knighted, made chancellor of the exchequer, member of his majesty's privy council, and master of the rolls. Under Charles I. also he was privy councillor.

CÆSAREA, a ruined and desolate coast town of Palestine. Its walls, market places, and churches are still partially standing, though greatly decayed. This town was founded by old Syrian kings, but was enlarged, fortified, and adorned with splendid buildings, just before the Christian era, by Herod the Great, who gave to it its present name, in honor of Augustus. It is memorable in the apostolic travels of Peter and Paul, became under the Romans the capital of its province and the residence of the Roman proconsul, and received new favors from Vespasian and Titus. It was taken in 685 by the Saracens.

CÆSAREAN, or CÆSAREAN, OPERATION, the taking of a child from the womb by cutting, so called from Julius Cæsar, who was said to have come into the world in this way. This operation was first performed on women who died in childbirth before the child was born, and as a means of saving the life of the infant, which would otherwise have been lost, as well as that of the mother. After the publication of the work of Eucharis Roslein, at Worms, in 1518 ("The Rose Garden for Midwives and Pregnant Women"), and the improvements in obstetric science made by Vesalius in Padua, 1543, the Cæsarean operation was not only performed in all such cases, but was commanded by law, as a means of saving the life of the child. In 1581 Francis Rousset, a surgeon in Paris, published a treatise, in which he gave proofs of the possibility of safely performing the Cæsarean operation on the living mother, in cases of malformation and impossible natural delivery. He also first gave the present name to this operation, which from that time forward has often been performed on the living mother with complete success, though not invariably.—When from any cause the antero-posterior diameter of the superior strait of the pelvis, or the transverse diameter of the lower strait, is not more than 1½ inch, the head of the child cannot pass, and there is no possibility of delivery *per vias naturales*. It then becomes necessary, if the child be living, to resort to the Cæsarean operation as the only means of delivery. Dr. Churchill, who is one of the highest authorities on this question, states "that in cases where the patient cannot be delivered by any other means, and when, consequently, both mother and child would inevitably die, a chance of saving the lives of both is afforded by the Cæsarean section." In this operation the walls of the abdomen are carefully opened in front of the uterus which is also opened, and the child is taken di-

rectly from the womb, in lieu of passing through the natural descent. The best period for operating is at the commencement of the labor, provided there be no doubt as to the necessity. The strength of the parturient woman is then unimpaired; she can bear the operation better, and runs less risk of inflammation.

**CÆSIUS BASSUS**, a Roman lyric poet of the time of Nero, praised by Quintilian as second only to Horace. He was the friend of Persius, and is thought to have perished by an eruption of Mount Vesuvius.

**CÆSTUS**, or **CÆSTRUS**, in classical antiquity, a gannet used by pugilists at the public games. The caestus covered the fist and wrist, and extended frequently to the elbow. Originally the caestus was nothing more formidable than thongs of leather; in later times knobs of lead and nails were added.

**CÆSURA**, in Latin poetry, the name given to a division of the verse by one or more pauses.

**CAF**, a mountain fabled by the Mohammedans, which encircles the whole earth. It is the home of giants and fairies, and rests upon the sacred stone Sakhrat, one grain of which gives miraculous powers to its possessor. This stone is of an emerald color, and its reflected light is the cause of the tints of the sky.

**CAFFARELLI, FRANÇOIS MARIE AUGUSTE**, a French general, born Oct. 7, 1766, at the chateau of Falga, Haute Garonne, died Jan. 28, 1849. At the beginning of the revolution he was employed in the Sardinian army, but joined the army of the republic as a simple dragoon. In 1804 he was charged with the mission to Rome to induce the pope to come to Paris to perform the ceremony of Napoleon's coronation, and on his return was made governor of the Tuileries. He was wounded at Austerlitz, accompanied Prince Eugene in Italy, and took a part in the war in Spain. In 1814 he was chosen by Napoleon to conduct the empress and their son from Paris to Vienna. He retired from public life after the battle of Waterloo.

**CAFFARELLI DU FAIGA, LOUIS MARIE JOSEPH**, a French general, born at Falga, Feb. 18, 1756, died in Syria, April 27, 1799. He protested against the right of the national assembly to dethrone the king, and was dismissed from the army and imprisoned. Being released and reinstated, he distinguished himself in the army of the Rhine, under Jourdan. He accompanied the expedition of Napoleon to Egypt.

**CAFFEINE**, the active principle in coffee, first extracted by Runge in 1820. It is a weak alkaloid, identical in chemical composition with theine, the active principle of tea. Being found in all the varieties of coffee as well as of tea, which are used as drinks by a large portion of the human race, it no doubt possesses some properties of importance to the animal system. Very few other substances contain so large a proportion of nitrogen gas as caffeine, its percentage of this element amounting to 21.6. Its composition, as shown by Liebig, is represented

by the formula,  $C_8H_8N_4O_2$ , by which it appears to be closely related to some of the nitrogenized constituents of bile, as taurine. It is obtained crystallized in long silky needles of a white color, which are fusible and volatile, and are easily dissolved in water, alcohol, and ether. To a decoction of coffee or tea, acetate of lead is added to precipitate the caffeotannic acid. This is separated from the solution by filtering, and the excess of lead is removed by its precipitation by sulphuretted hydrogen. The liquor again filtered is then evaporated, and the caffeine crystallizes. It is purified by dissolving and again crystallizing. The quantity obtained from coffee is generally about 1 per cent., which is only  $\frac{1}{3}$  the amount furnished by tea; as the infusions are prepared, however, for ordinary use, more of the active principle is contained in a cup of coffee than in one of tea. Robiquet and Boutron give much larger proportions than 1 per cent. In Java coffee they found 4.4 per cent. of caffeine, and in Martinique coffee 6.4 per cent. Caffeine has a bitter taste, and acts powerfully upon the system when taken in doses of from 2 to 10 grains. It causes palpitation of the heart, great irregularity of the pulse, oppressions in the chest, and pains in the head, confusion of the senses of hearing and seeing, sleeplessness and delirium. The substance may be recognized by its great volatility, and the property it possesses, when dissolved in nitric acid, evaporated to dryness and exposed to ammoniacal gas, of giving a pink-colored blush.

**CAFFILA**, a company of oriental travellers. It differs from the caravan only in being in the employ of a single sovereign, and in being organized for a single common object; while the caravan is composed of merchants, each acting on his own account, and without organized or permanent union.

**CAFFRARIA** AND **CAFFRES**, a country and a race of men in the E. part of South Africa, from the N. E. frontiers of the Cape Colony, about lat. 32° S., to Delagoa bay in lat. 26° S. Caffraria is bounded on the west by the Transvaal republic. The inhabitants, or Caffres, from whom the land receives its name, were so called by the Mohammedans, who applied to them the Arabic name *Kafir*, or unbeliever. The men are powerfully and symmetrically built, the females superior in beauty to the other native races of southern Africa. The complexion of the southern Caffres is brown or copper color; it becomes darker as you advance north, until it is deep black. Their hair is black and woolly; the nose and forehead approach the European type; the cheek-bones resemble those of the Hottentot, and the lips are thick and prominent. They have but little beard. Their language is tolerably rich, and superior to the speech of the Bosjesman and Hottentot. Their government is patriarchal; a petty chief presides over every kraal or hamlet, and is tributary to a higher chief. These higher chiefs owe allegiance to the *Umkumkani*, or great chief, and form the national council. They live



by the raising of cattle and hunting. Their agriculture is attended to by the women. They have no notion of a Supreme Being, but are devout believers in witchcraft and spirits, and the shades of their ancestors. A Caffre swears by the spirit of his ancestor. Their charm-doctors, rain-makers, and prophets exercise great power. They circumcise the boys at the age of 12 or 14, and abhor the flesh of swine and all fish except shell-fish. Christianity has not made much way among them, although missionary stations have been planted there for 40 years. The great stumbling-block is the Christian doctrine of monogamy. Their huts are hemispherical, thatched with straw and plastered with cow-dung. There is no chimney; the fire-place is in the centre. They preserve their millet in pits dug in the ground. The men often go totally naked. The Caffres are divided into 4 tribes: 1, the Amakosa, who border upon the British settlements; the Caffre war of 1847 resulted in stripping them of the greater part of their territory; 2, the Amatamba or Tambookia, whose westernmost territories border on the back territory of the colony toward the sources of the Great Key; 3, the Amponda or Mambookia, and 4, the Zoolah or Zooloo, who inhabit the northern portion of Caffraria and extend far inland. Their territory has been much diminished by the British and Dutch settlers. Their native weapons were clubs and javelins, but they have learned the use of firearms from their enemies, and are very formidable opponents in mountain and bush warfare.—British Caffraria extends from the Keiskama to the Great Key river, and is divided into the counties of Northumberland, York, Sussex, Middlesex, Cambridge, Lincoln, and Bedford. The capital is King William town on the Buffalo. The principal forts are Wellington and Cox. The Caffre population of this territory has been partially won over to civilization. The importation of arms, gunpowder, and spirituous liquors among them is strictly forbidden. The territory was finally annexed Dec. 23, 1847. The climate of Caffraria is healthy and well adapted to the European constitution. The country is beautifully wooded, rising in terraces from south to north, and is watered by several rivers. The aloe, the gum-tree, and the plantain abound; lions, elephants, hippopotami, and rhinoceroses are to be found, but are becoming rare.

CAFFRISTAN, or KAFIRISTAN, a region amid the Hindoo Koosh mountains of Asia, between lat. 35° and 36° N. and long. 69° 20' and 71° 20' E. The country consists mainly of snowy mountains and sterile hilly districts, but has also a few small and fertile valleys, which produce abundance of corn and fruits. The houses are built on or rather in the slopes of hills, and placed one above another, so that the roof of the lower house forms a pathway to the one above it. Caffristan received its name, which means "the land of the infidels," from the circumstance that the oc-

cupants of this region could never be converted to the Mohammedan faith. They are described as a fine and handsome race. In government they have no common chief, but each tribe obeys a leader of its own, and they are all united only in hatred to the Mohammedans. No Cafir is deemed worthy of honor till he has killed a Mussulman. In religion they are said to acknowledge one supreme God, but they also give worship to numerous intercessorial idols. Their language resembles the Sanscrit, and is spoken with considerable variations of dialect in the different valleys.

CAFTAN, the national garment of the Persians and Turks. It is a loose, flowing robe, generally white, and ornamented with intricate flowers.

CAGAYAN, a province of Luzon in the Philippine archipelago, the largest and least productive division of the island. It extends from Cape St. Vincent, the northern extremity of the island, in lat. 18° 40', to 17° 10' N.; and from the Pacific ocean, its eastern boundary, to the Sierra Madre range of mountains, which bounds it on the west, the distance is about 75 miles; area 9,102 sq. m.; pop. in 1849, exclusive of wild races, 85,839. The large river, called Cagayan, Sallo, and Aparri, at different points, by the natives, but named the Tajo or Tagus by the Spaniards, flows through this province from south to north. This river is navigable by vessels drawing not more than 13 feet of water, for a distance of 75 miles. At its mouth, on the left bank, is situated the town of Aparri, having about 7,000 inhabitants. There is a good harbor at this place, which affords shelter to the numerous fishing fleets, which find profitable occupation in Balingtang straits, and in the vicinity of the Babuyan group of islands. The waters of the Cagayan Tagus are famous for the great abundance of good fish which they contain. Indeed, the land is less productive than the water; the soil of Cagayan, which is exposed to a humid and stormy climate, produces only maize for food, and some indigo and tobacco for exportation; but it affords excellent pasture for hardy breeds of horses and cattle, which are in considerable demand at Manila and in the southern portions of the island. This rigid soil and ungenial atmosphere are also favorable to the development of the most energetic and intelligent of the Philippine brown races. The bravest soldiers in the Spanish East Indian armies are obtained from this province; and those active and skillful sailors, so much in demand by East India merchantmen, and commonly known as "Manila men," as they are generally shipped at Manila, nearly all come from Cagayan. The Spaniards give the native Cagayans a high reputation for honesty; and Catholic priests, in their accounts of missions in this province, represent in glowing language the frank and truthful nature of the inhabitants. Beside this dominant, and most numerous brown race, there are to be found in the rocky fastnesses of the Caravallos and Sierra

Madre ranges of mountains, many tribes of Aetas, or dwarf oriental negroes; those east of the Tagas, known as *Negros caribos bravos*; and the tribes west, as *Infieles calanas bravos*. These singular, untamable little savages are the pest of the brown and civilized races. The prosperity of the province is much retarded by the frequent destructive forays of the Negrito mountaineers, into the cultivated lands of the civilized Cagayans. Spanish missionaries, so successful elsewhere in Luzon, after making numberless utterly fruitless efforts to produce a civilizing influence among these tribes of Aetas, have deemed their extermination or enslavement imperatively necessary; but the government of the Philippines, which has generally been guided by a humane policy, has declined to adopt measures for that purpose. The number of the wild inhabitants in Cagayan has been variously estimated by Spanish authorities at 7,000 and 10,000. Iron ore, in great abundance, is found in this province, and grain gold in alluvial deposits. The chief wild animals are the deer and the hog; the latter being as plentiful in the forests of Cagayan as in the neighboring Babuyan islands, which receive their name from this circumstance. Many of the forest trees are of superior quality for shipbuilding; and ebony and sapan-wood are produced.

CAGAYAN SOOLOO, an island of the Malay archipelago, in the sea of Mindoro, intersected by lat. 7° N., and long. 118° 36' E.; area, 85 sq. m.; pop. about 12,000. This island was visited by the companions of Magellan in 1521, and Pigafetta speaks of it as being inhabited by a race of Moorish pirates, much resembling, in splendid warlike accoutrements and well-ordered system of military organization, their Saracen contemporaries on the shores of the Mediterranean. The piratical character of the island, as also of the rest of the Sooloo group to which it belongs politically, has been preserved, but the political organization has declined. The great vikings of Cagayan Sooloo, who went forth during the 16th and 17th centuries, with fleets equal in numbers and force to those of a Scandinavian Rollo or Hastings, to ravage the most remote islands of the archipelago and even the coasts of Asia, have been succeeded by a number of petty chieftains, who, with one or half a dozen war prahus, occasionally plunder a Chinese junk, or a Bughinese padewakan, and sometimes an unarmed European colonial ship. When piracy becomes unprofitable by reason of the surveillance of a European ship of war, a little commerce is carried on with the northern ports of Borneo in tripang and tortoise-shell, and with China in birds'-nests. The people of this island resemble the Malay race in appearance, but speak a language entirely different, partaking somewhat of the character of the Tagala in construction, and having a large portion of words used in the several Philippine languages. The Sooloo language is more guttural than any other

spoken in the Malay archipelago. The Arabic character is used in writing. The Cagayan islanders cultivate rice, and have enclosures of well-assorted fruit-trees; they plough with oxen, rear a variety of domestic poultry, make for themselves very handsome and tastefully ornamented garments, and fabricate their own weapons, and agricultural and other implements. The island has been visited several times lately by Spanish ships of war, and by Spanish agents, and is now regarded, though by no means conquered or taken possession of, a dependency of the government of Manila.

CAGLIARI, the southern part of the island of Sardinia, divided into 4 provinces, Cagliari, Iglesias, Isili, and Oristano, and a capital of the same name (anciently *Caralis*), which is situated in a recess on the southern coast of the island, in lat. 39° 13' N., long. 9° 7' E. It is built on the slope of a steep hill which rises from the coast, and it presents an imposing appearance from the sea. The highest part contains the principal public buildings—the castle, with the viceregal palace, the cathedral, built during the 14th century, and the university, with its 4 departments of theology, law, medicine, philosophy, and belles-lettres, and having 24 professors and 300 students. Cagliari has also a public library of about 20,000 volumes; a museum containing medals as old as the Carthaginian period, several public seminaries, many churches, and 21 convents. It is the see of an archbishop, the place where the states-general of the island assemble, and the principal port of the island. Its more important exports are corn, oil, wine, tobacco, firearms, and soap. During the occupation of Sardinia continental by the French at the beginning of this century, the king of Sardinia took up his residence at Cagliari. A submarine telegraph communicating with Bona, in Algeria, and another with Malta, have been in operation since 1857. Pop. about 30,000.

CAGLIARI, BAY or, a bay of the Mediterranean, on the S. coast of the island of Sardinia, between Capes Pula and Carbonara, 27 miles wide at its mouth, with secure anchorage. The salt-works here yield about 6,000 tons annually.

CAGLIARI, or CAGLIARI, PAOLO, commonly known as PAUL VERONESE, a distinguished painter of the Venetian school, born in Verona about 1528, or according to some authorities in 1530, died in 1588. His father, Gabriele Cagliari, a sculptor, instructed him in drawing and modelling; but the pupil seized the opportunity to enter the studio of his uncle, Antonio Badile, a Veronese painter of some eminence, from whom he acquired the elements of that sumptuous style for which he is distinguished. After executing some designs in fresco on the dome of the cathedral at Mantua, for the cardinal Gonzaga, finding his native city overstocked with painters, he repaired to Venice, where he passed the remainder of his life. For a time he employed himself in studying the works of Titian and Tintoretto and soon took his place

among that illustrious trio who made the school of Venice famous long after the art had begun to decline in other parts of Italy. The work which first brought him into notice was the story of Esther, painted on the ceilings of the church of St. Sebastian, under which the artist lies buried, and which, from the number of his works to be found in it, is an appropriate monument of his genius. The subject was calculated to exhibit his lively invention and talent for depicting ornamental accessories, and thenceforth the Venetians were never tired of employing an artist who could minister so acceptably to their luxurious and splendid tastes. A journey to Rome in the suite of the Venetian ambassador, Grimani, enabled him to study the works of Raphael and the elder masters, whose severe simplicity, however, could not divert him from the style he had already adopted. His history after his return to Venice is a record of great works executed, of which a prodigious number, some of almost colossal dimensions, left his studio. He was amiable, accomplished, and pious, and above all, was distinguished for the generous profusion with which he distributed his paintings among churches and convents. He would seldom take from them more than the price of his canvas and colors, and for his great picture of the marriage in Cana, painted for the refectory of the convent of San Giorgio Maggiore, received, it is said, the insignificant sum of 80 ducats.—No painter ever more frequently violated the proprieties of chronology and costume, or more openly disregarded fact and probability; and none, perhaps, has so magnificently redeemed his errors. In his picture of the family of Darius brought before Alexander, formerly in the Pisani gallery, but recently purchased for the British national gallery at an outlay of £14,000, the men are Venetian soldiers, senators, and citizens, the women are Venetian ladies, the architecture is of the ornate 16th century style, and the costume of the same period. In the "Rape of Europa," now at Vienna, Europa is a noble Venetian dame, sumptuously attired, and her attendants are modern maids of honor. But the celebrated picture of the marriage in Cana, 80 feet by 20, now in the Louvre, is one of the best specimens of his representations of festive meetings, on which his reputation principally rests. There are 8 other festival pictures on a similar scale with the marriage in Cana, and quite as well executed, although not perhaps so well known: Christ entertained by Levi, now in the academy of Venice; the supper in the house of Simon the Pharisee, with Mary Magdalene washing the feet of Christ, now in the Durazzo palace at Genoa; and the supper at Emmaus. Of his more purely religious subjects, the 3 pictures representing the death of St. Sebastian, in the church of that name in Venice, are among the finest for color and composition he ever painted. His scriptural, mythological and allegorical pictures are almost innumerable, and many excellent specimens are to be found at Milan

and in the Louvre. Of his allegorical subjects, his Venice crowned by fame, on the ceiling of the Maggior Consiglio hall, is an admirable specimen.

CAGLIOSTRO, ALESSANDRO, count, an Italian adventurer, whose real name was GIUSEPPE BALSAMO, born June 2, 1743, in Palermo, died, after having swindled and mystified persons of all nations, and been condemned by the inquisition at Rome, in the dungeons of Fort San Leon in the duchy of Urbino, in 1795. Goethe bore evidence to the honorable poverty of his family, whom he visited and assisted during his stay at Palermo. The future Cagliostro made his debut in 1758, when he ran away from the seminary, where he had been placed by his guardians, who brought him back and sent him to a convent at Cartagire. Here he insinuated himself into the good favor of an apothecary, who initiated him into some of the mysteries of his craft, but had to dismiss him on account of the vicious propensities which belonged to his temperament, and which, on his return to Palermo, degenerated into the most infamous habits. By 1769 he had succeeded in establishing for himself all over Sicily the reputation of a most dangerous, but at the same time of an exceedingly shrewd fellow. Sicily became too hot for him, and he made his exit in a characteristic manner by obtaining money from a confiding goldsmith, under the pretence of helping him to a treasure. With this money he set about travelling, in company with a strange being of whom nobody ever knew whence he came. One of the great means with which Cagliostro played upon the public credulity was to surround himself with the most impenetrable panoply of mystery, and in this respect his travelling companion, whom he baptized by the mystic name of Alhotas, was of great service. In travelling, his policy was to assume a different name and character in every different country, now appearing as a necromancer, then as a nobleman, again as a naturalist, or as a learned physician, while the daily exercise of old tricks and the concoction of new ones imparted an inexhaustible elasticity to his inventive genius. With Alhotas, he explored Greece, Egypt, Turkey, and Arabia. At Medina he was the guest of a distinguished mufti. He became a great favorite with the sherif of Mecca. His smattering of medical science operated like a talisman. His audacity grew with his success. In 1770 he honored the grand master of the knights of Malta with a visit, and introduced himself as the count Alessandro de Cagliostro, a name which he invented for this special occasion, and which he preserved on account of its euphony. His subsequent brilliant career was due to this lucky interview, as the commander of the knights of Malta supplied him with letters of introduction, which, crowning the adventurer's long-cherished plans, gave him for the first time, access to the Italian nobility. Fearing, however, that this recommendation would not be sufficient, after his arrival a

Venice he married a beautiful woman, Lorenza Feliciani, and travelling with her through upper Italy she succeeded in making dupes, by her feminine cunning, in quarters where his masculine deceptions failed to be effective. Her special mission was to captivate the hearts of the people, while he, by turns doctor, naturalist, alchemist, freemason, fanatic, sorcerer, spiritualist, necromancer, exorciser, seized hold of the mind and the imagination, always with an eye to the pocket of his victims. After having done an excellent business in Italy, he made his appearance in Germany, in which country he invented an elixir that insured perpetual life and never-fading beauty. Women, whose proneness to credulity had ever been used by him with infinite adroitness, became still more attracted toward him by the salutary effects of his wondrous elixir, the operation of which, he used to say, was manifest upon his own person, as he frequently passed himself off for 100, 150, or 200 years old, his wife assisting him in this chronological deception by speaking of her son as being a captain in the naval service of the king of Holland, and 50 years old, while she herself hardly looked older than 20. After having completed his tour through Germany, which must have added considerably to his extensive fortune, and bent as he was on making the conquest of credulous people in Russia, instead of repairing at once to St. Petersburg, he first paved his way to their imagination by the prestige of his career in Courland, in which country he halted on his way, especially as he knew that many of the Russian nobility resided there. In 1779, while at Mittau, he gathered around him the first ladies of the town, and founded, as he alleged, at the suggestion of supernatural powers, a masonic lodge, in which high-bred females would be admitted as members. He conjured spirits before the nobility of Mittau, and delivered mystic lectures. The gentlewomen of Courland, and especially Elisa von der Recke, worshipped at the feet of Cagliostro, who, with his usual tact, left before the enthusiasm of his victims had reached its climax, and made for St. Petersburg via Warsaw. But here he was doomed to disappointment. Catharine II. laughed at him, and at his female disciples of Courland, and wrote a satirical play on the subject, which expressed more than she chose to say. He left Russia for France, and arrived at Strasbourg in 1780, where he at once went to work upon the bishop of that city by effecting, under his eyes, some happy cures, or at least making the good prelate believe that they were so. The news of this miracle spread over France. The Parisians received the charlatan with open arms, and in 1785 he took up his abode in the *Marais*, in the *rue St. Claude*. His laboratory became thronged with amateurs anxious for elixirs and communion with spirits. Here he revived an old Egyptian masonic order, of which he became the grand kophta, whose chief mission it was to impart to the members the

power of making gold, and of keeping death at a distance. The most eminent persons of the French court were his disciples; above all, Cardinal Rohan. Cagliostro became implicated in the diamond necklace scandal, by the evidence of the countess de la Motte, and was taken to the bastille; but as nothing could be proved against him, his liberty was restored to him, but he was expelled from France, and removed to England, where, however, he never made much headway. Nothing would be more fatal to a person of his stamp than an encounter with English common sense. London was not the place for Cagliostro. His exclusion from Germany was caused by Elisa von der Recke, his Mittau disciple, who had become his most decided denouncer in a book entitled *Nachricht von des berühmten Cagliostro Aufenthalt in Mittau* (Berlin, 1787). He betook himself to Switzerland and Sardinia, but his star was declining. On his arrival in Rome in 1787, and on attempting to found a new masonic lodge, he fell into the hands of the inquisition, and was sentenced to death. This judgment was commuted to imprisonment for life, and he died after having had time for 8 years, in his dreary dungeon, to ponder over the amazing facility with which, under certain circumstances, bad men may prey upon their fellows. His wife, who was kept in durance in a convent, died a few years afterward.—In Alexander Dumas' *Mémoires d'un médecin*, the *médecin* is Cagliostro in his original character of Dr. Joseph Balsamo. In Casanova's "Memoirs," interesting reference is made to him. Mirabeau, in his letters dated 1786, speaks of Cagliostro, and, in the same breath, of Lavater, who, with all his knowledge of human nature, was one of the most eminent dupes of the Sicilian impostor. Memoirs of his life appeared in French and Italian. Thomas Carlyle, in his "French Revolution," also gives a description of Cagliostro in connection with the necklace affair.

CAGNOLA, LUIGI, marquis, an Italian architect, born in Milan in 1762, died Aug. 14, 1833. Among his best works was a grand arch of wood, which he erected at Milan, and which was so greatly admired that it was ordered to be executed in some more durable material. The work was commenced, but the reverses and overthrow of Napoleon had nearly caused its total suspension, when the emperor Francis I. of Austria directed the arch to be completed. Another of his great works is the Porta di Marengo at Milan. He also constructed several churches at Milan and other cities, the finest of which is one in the Corinthian style at Ghisalba. Some of his designs, however, were on so magnificent a scale as to render the execution of them hopeless.

CAGNOLI, ANTONIO, an Italian mathematician, born at Zante in 1743, died in Verona, Aug. 6, 1816. The son of a functionary of the republic of Venice, he spent some time as secretary of legation at Madrid, and subsequently came to Paris, where he devoted himself to the

study of astronomy. Afterward he lived at Verona, where his house became a sort of observatory, until 1797, when the French invasion made him leave the city. He taught astronomy at Modena for a time, and finally returned to Verona. He was the author of a work on astronomy, and of another on trigonometry.

CAHAWBA, a river of Alabama, rises in Jefferson co., and after passing through a rich coal region, joins the Alabama at Cahawba, in Dallas co. It is navigable by small boats for 100 miles.—CAHAWBA village, Alabama, is the capital of Dallas co. It is situated on the Alabama river, near the mouth of the Cahawba, contains several churches, printing offices, and a land office, and is the shipping point for the cotton produced in the neighborhood.

CAHEN, SAMUEL, a French Hebraist, born at Metz, Aug. 4, 1796. He received a good education, which he improved by assiduous industry in after life. Intended by his parents for a rabbi, he was, at the age of 14, sent to Mentz to enjoy the instructions of the rabbi of that city. He edited the *Archives Israelites*, completed a translation of the Bible in 1851, and has published many works intended to illustrate the Hebrew language.

CAHORS, the chief town of the department of Lot, France, on the right bank of the river of that name, which forms here a wide bend so as to enclose the town on 3 sides, 60 miles N. of Toulouse. Its narrow and crooked streets, as well as various remains, are evidence of its antiquity. Vestiges of a Roman amphitheatre, aqueduct, and portico, are still to be seen here. Of the 8 bridges on the Lot, one, probably built in the 14th century, is surmounted by 8 towers, to defend the approach to the town. The capture of Cahors in 1580 was one of the most brilliant exploits of Henri IV., then king of Navarre; after surprising one of the gates, he had to fight for 5 days and nights in succession before gaining full possession of it. Cahors is the seat of a bishopric, the occupant of which during the middle ages held the title of count, and wore a sword and gauntlets, which he deposited on the altar when he said mass. The cathedral of Cahors is a fine edifice. Among the public institutions are a theological seminary, a public library, a lyceum, an agricultural society, &c. Clément Marot, the poet, and Murat, king of Naples, were born here. The university, which was founded in the 14th century, but suppressed after the revolution of 1789, had the famous jurist Cujas as one of its professors, and among its pupils was Fénelon, whose statue is placed in front of the college on the Fossé promenade. In the middle ages Cahors was one of the most important emporiums of the money-changers of southern France, who were called *Caorsini*. There are some manufactures of cloth and other woollen stuffs; a considerable trade in wines, leaf tobacco, brandies, and truffles is carried on. Pop. in 1856, 13,676.

CAIAPHAS, the high priest of the Jews, to

whom Jesus was sent by Annas, before whom he was first brought in his betrayal by Judas. The mention of Annas and Caiaphas as both holding the office of high priest at the time of the trial of Jesus, has given some difficulty to Biblical readers, who know that, according to the Mosaic system, there could be but one high priest at a time. But it must be remembered that the Jewish people were in a state of subjection to the Roman power, and held their religious forms not in the integrity of the Mosaic statutes, but arbitrarily modified at the pleasure of the Roman governor of Judea, at least since the accession of Herod. This arbitrary power was exercised by the successive Roman governors so freely as to change the high priest's office from hand to hand almost yearly. But as, according to Jewish notions, the sacredness of the high priest was not so readily transmissible from one person to another, he who had once held the office of high priest was ever after spoken of with the same reverence as though he had not been divested of this dignity. Hence, when out of regard to his age, and also his relationship as father-in-law of Caiaphas, Jesus was first brought to Annas, he sends him in turn, as arrested on a civil criminal charge, to Caiaphas, the only high priest who had any jurisdiction in the case. Caiaphas was the immediate successor of Simon, the son of Camith, and came to the pontifical honors about A. D. 27 or 28, from which he was deposed after 9 years, and succeeded by Jonathan.

CAICOS, or CAYCOS, or THE KEYS, 4 of the Bahama islands, called Great, Little, and North Keys, and Providence Island, on a bank of the Atlantic. Some islets and rocks are generally included with them under the name of Caicos. The Great Key is 30 miles long.

CAILLÉ, NICOLAS LOUIS DE LA. See LA CAILLÉ.

CAILLÉ, RENÉ, a French traveller, born Sept. 19, 1799, at Mauzé, died near Paris, May 17, 1838. His imagination became fired by reading the adventures of Robinson Crusoe, and his attention turned to the exploration of Africa. At the age of 16 he embarked for Senegal. After having passed some time at Guadeloupe, he returned in 1818 to St. Louis and joined the caravan which Partarrien conducted through Gjolof and Foots to Bondoo, where he joined Major Gray, the leader of the English exploring expedition, who was detained at the latter place. This expedition, however, did not prove successful, and Caillé, after recruiting his strength in France, returned in 1824 to Senegal, determined to reach Timbuctoo by his own exertions. Baron Roger, the French governor of Senegal, helped him to a small supply of merchandise, and Caillé, having adopted the Arabian dress and assumed the religion of the country, joined a caravan as peddler of goods. After many vicissitudes and adventures, he set out from Kakoudy, April 19, 1827, and following a south-eastern direction he passed Inanke, Foutah-Gjalo, Baley

Amana, and June 18, reached for the first time the shores of the Niger, which he crossed. After spending some time at Kankan and Sambatikila, he travelled about 200 miles eastwardly over territories never visited before, arriving at Timé Aug. 8. Here he was detained by illness for 5 months, until Jan. 9, 1828, when he struck on a new road which had previously been unknown to geographers, and following a N. N. E. course, he reached Jenne on March 11. Here he embarked for Timbuctoo, where he arrived about April 11, after one month's sail on the Niger. He fell in there with a caravan bound to Morocco, and in order not to lose such an auspicious opportunity for returning, he left Timbuctoo after a short stay of a fortnight, and after a tedious and painful passage of 2 months through the desert, he reached Fez, Aug. 12, and from thence travelled to Rabath, then to Thangen, and from the latter place he returned to France. On his arrival at Toulon he was received with the utmost enthusiasm. He was the first European who ever returned from Timbuctoo, and who had achieved success, while expeditions supported by government had resulted in failure. A special prize of 10,000 francs was awarded to him by the geographical society, with the annual prize of 1,000 francs for the most important discovery. The order of the legion of honor was conferred upon him by the king, and he became, at the same time, the recipient of a salary in connection with an office, to which he was appointed in the Senegal service. Furthermore, a pension from the fund set apart for eminent literary and scientific men was decreed to him by the minister of the interior, and his *Journal d'un voyage à Timbouktou et Jenné, dans l'Afrique centrale, etc.*, with geographical data added by Jomard, was published at the expense of government, and appeared at the beginning of 1830 in 3 vols. 8vo.

CAILLET, GUILLAUME, called Jacques Bonhomme (a sobriquet given by the nobles to the peasants who meekly submitted to their ill-treatment), the leader of the French peasants, or *Jacquaris*, as they were called, who in 1858 rose against the nobility of northern France, was born at Mello near Beauvais. From Beauvais and Clermont, the insurrection spread over the neighboring districts; nearly 100,000 peasants were in arms, and in the course of their murderous attacks, to which they were chiefly instigated by their starving condition and by the extortion practised upon them by the nobles, they destroyed more than 160 fortresses in Valois and the dioceses of Laon and Soissons, and the castles of the family of Montmorency. When the nobles of all parties had combined to smother the rebellion, Caillet presented himself to the king of Navarre, Charles the Bad, with a view of entering into negotiations. The king, however, sentenced him to die on the gallows. CAILLAUD, FRÉDÉRIC, a French traveller, born at Nantes, March 10, 1787, visited in his youth Holland, Italy, Greece, and Turkey.

On arriving in 1815 in Egypt, he was sent by the pasha on an exploring tour along the shores of the Nile, and the neighboring desert. From that time, M. Caillaud devoted himself to the exploration of Egypt, and the results of his investigations were published in 1821, in the description of his travels to the desert of Thebes; in 1826 and 1827, of his journey to Meroë; and in 1831, in a work on the artistic, industrial, and domestic life of the ancient Egyptians, Nubians, and Ethiopians, with details on the aspects of their modern civilization. Caillaud's most interesting discoveries consisted in the famous emerald mines on Mount Zabarah, and in the ruins of a small town, probably formerly the place of abode of the miners, with Græco-Egyptian monuments and very ancient inscriptions. He also discovered one of the ancient roads of traffic which connected India with Egypt. On his return to Paris, his collection of antiquities and his other trophies were purchased by the government, and M. Jomard was charged with the publication of the work on Thebes, and subsequently with that on Syouah.

CAILLOMA, or CAYLOMA, a town of Peru, South America. It is the capital of a province of the same name, in the department of Arequipa. Pop. of the province in 1850, 23,448.

CAILLOU LAKE lies in Terre Bonne parish, Louisiana. It is 10 miles long, and connected with Caillou Bayou, and with the gulf of Mexico, 2 miles distant.

CAIMACAN (Turk. *Kaimakam*), an oriental title, applied to the grand seignior, the grand vizier, the governor of Constantinople, and the commandants of the Turkish provinces; and, among the Tartars of the Crimea, to the regent in the absence of the khan.

CAIN, eldest son of Adam and Eve, became a cultivator of the soil, killed his brother Abel, who was a keeper of flocks, and was condemned by God to be a fugitive and vagabond on the earth. After many wanderings, he retired to the land of Nod, on the east of Eden, where he built a city, which he called Enoch, from the name of his son.

CAINITES, a sect of the 2d century, who paid homage to all the reprobate characters mentioned in sacred history. Cain, from whom they took their name, and Judas, the traitor, of whom they had a forged gospel, were objects of their particular veneration. They were a branch of the Gnostics, and admitted great numbers and various ranks of genii and virtues.

ÇA IRA, a revolutionary song in France during the reign of terror. Originally the music was adapted to a favorite air of Marie Antoinette, who was doomed to hear it again on her way to the guillotine. For 4 years the bloody air accompanied the victims of the first revolution to the guillotine. It was only totally abolished when Napoleon, on entering upon the consulate, prohibited all songs which savored of the reign of terror. Yet, like the *Marseillaise*, the *Carmagnole*, and the *Chant du départ*, the *Ça ira*

has become naturalized among the French national songs, and even during the outbreaks in France after the revolution of 1848, the ominous song was occasionally heard again in the streets of Paris.

CAIRD, JAMES, a Scotch agriculturist, born at Stranraer in 1816. He was educated in Edinburgh, became tenant-farmer on the estate of the earl of Galloway, in Baldoon, was brought into public notice as agricultural commissioner for the "Times" newspaper, and has published several works on agriculture, the most important of which are "High Farming" and "English Agriculture." In 1857 he was elected to parliament for the borough of Dartmouth, as a supporter of Lord Palmerston.

CAIRD, JOHN, a clergyman of the church of Scotland, born at Greenock in 1828. He was educated at the university of Glasgow, licensed to preach in 1844, and became soon after minister of a church in Edinburgh. He exchanged this position in 1850 for a rural pastorate in Errol. In the church of Orathy, Oct. 4, 1855, he preached in presence of the queen and Prince Albert, and the sermon, published by royal command, and entitled "Religion in Common Life," attracted much attention, and was republished and widely read in America and on the continent of Europe. Mr. Caird is one of the most eloquent preachers in Great Britain, and his manner is described as a gradual transition from simple earnestness to the most violent yet skilful gesticulation and vociferation. He is now one of the ministers of Glasgow, and published in 1858 a volume of sermons.

CAIRIRIS, or JABITACA, a mountain range of Brazil, in the province of Pernambuco. It is 800 mile long, and forms the northern boundary of the basin of the Rio San Francisco.

CAIRN (Welsh, *carne*), the name of ancient heaps of stones in a conical form, which were erected in Britain as sepulchral monuments in honor of great men. The stone chests containing the urns and ashes of the deceased rest below, and as many as 17 have been discovered under one cairn. The Scottish Celts have a saying, "I will add a stone to your cairn," which means, I will bless and honor your memory. In many parts of Scotland and Ireland, a heap of stones in the form of a cairn is gradually raised on the spot where a murder has been committed. The country-people think it unlucky to pass by without throwing a stone on the heap.

CAIRNGORM, a mountain of Scotland, in the counties of Banff and Moray. It is 4,095 feet above the sea, and during most of the year its summit is covered with snow. Among other minerals, it produces the topazes known as "Cairngorm stones."

CAIRO, a town of Alexander co., Illinois, built on a low point of land, at the junction of the Ohio and Mississippi rivers. It was founded with the expectation that it would shortly become a great commercial city for the south-

ern part of the state, and large sums of money were expended on it in improvements by the Illinois central railroad company, who owned a great part of the land, and had here their workshops and the southern terminus of the road. To protect it from inundation, levees were erected, and a new embankment, 80 feet wide, 10 feet high, and designed to encompass the city, was commenced about 1857. In the summer of 1858, however, a destructive flood rose above this work, and destroyed almost the entire town. In 1857 Cairo had 3 mills, 1 iron foundry, 2 banking-houses, 2 insurance agencies, 8 newspaper offices, 1 brick-yard, 2 railroad depots, 2 telegraph offices, 8 hotels, 5 churches, and about 470 houses.

CAIRO (anc. *Corium*), a town of Piedmont, in the division of Genoa, on the Bormida, 12 miles N. W. of Savona, and 5 miles S. of Dego. Pop. 3,492. The French defeated the Austrians near here in 1794.

CAIRO, the capital of Egypt, the most populous city of Africa, and, after Constantinople, of the whole Turkish empire, is situated about a mile from the bank of the Nile, and 12 miles above the apex of the delta of that river; lat. 30° 2' N., long. 31° 16' E. It lies mostly on the level plain of the Nile valley, but the south-eastern part, including the citadel, is built upon a spur of the Mokkatam mountains. Cairo occupies a site of about 7 miles in circumference, and presents from without an enchanting spectacle, but within the appearance is far from being attractive. There are about 80,000 houses in Cairo. Those of the poor are built of mud, or of sun-baked bricks, and are only one story in height. Those of the richer class are built of brick, wood, and of a soft stone quarried in the neighboring Mokkatam mountains, and are 2, and frequently 3 stories high. The streets are in a wretched condition, unpaved and dusty. The usual mode of conveyance is by donkeys, horses being rarely employed, and the use of carriages being impossible, except in a very few streets. The principal public place, called the Esseekejah, is planted with shrubs and trees, and crossed by walks. There are about 70 baths, which are more cleanly than in other eastern cities. There are also many caravansaries, or inns, and numerous large and neat store-houses; and the extensive bazaars, though deprived of that magnificence which they exhibited at the beginning of the 15th century, still present a goodly array of the merchandise of the East. There are many public fountains, often elaborately ornamented with arabesque work, and a great number of coffee-houses, some of which are highly interesting during the fast of Ramadan, when the performances of the Karagioos, or Turkish Punch, take place. But the boast of Cairo is its mosques, of which there are said to be as many as 400, some of them elegant specimens of Arabian architecture. The most celebrated is the mosque of Sultan Hassan, which has a magnificent entrance, beauti-

fully embellished with honeycomb tracery. Attached to another mosque is a famous hospital for insane and other helpless persons, who are gratuitously supported in great numbers. The mosque El Azhar is celebrated not only for the beauty of its architecture, but for containing a college, to which many hundreds of students resort from all parts of the Mohammedan world, and which is the great centre of the study of Arabian literature. The mosque of Tooloon, founded A. D. 879, is interesting, as exhibiting specimens of the pointed arch, which was afterward introduced into Europe, and is one of the distinguishing characteristics of the Gothic style of architecture. North-east of the city, just outside of the walls, are a number of very beautiful mosques, built over the tombs of the Circassian and Borgite Mamelukes. In the south-eastern part of the town is the citadel, a fortress on a hill, 250 feet above the rest of the city, containing the palace of the viceroy, the mint, a manufactory of arms, various government offices, barracks, and other buildings, and a splendid mosque, begun by Mehemet Ali, and lately finished. Within the citadel is a deep well cut through the rock, which, though solid, is not hard, to the depth of 280 feet. It consists of 2 portions, the upper part being an oblong square, 24 feet by 18, and 155 feet deep, and the lower having a similar shape, 51 feet by 9, and 125 feet deep. The water is raised from the lower well into a basin at the bottom of the upper, whence it is conveyed to the citadel above, and is commonly designated Joseph's well, after Saladin, who is said to have constructed it, and who was also called Joseph. The citadel, which affords a splendid view of the city, of the Nile, and of the pyramids, commands the city, but is itself commanded by a neighboring ridge of the Mokkatam mountains, and is, therefore, of no utility against an attack from without.—The different races who inhabit Cairo live in distinct quarters, of which there are many, as the Jews' quarter, the Frank quarter, the Coptic quarter, &c. The streets leading to each quarter are closed at night by gates, of which there are 71. Cairo is divided, for purposes of police regulation, into 8 wards, each of which has a separate presiding officer, while the whole are under the superintendence of one common chief. Each trade, or calling, has also its sheik or head, who is in some measure responsible for the conduct of the members of his guild. Justice is administered in a summary manner; and breaches of the public peace are said to be less common than in some European cities. In the Frank quarter is a theatre, supported by subscription among the Europeans, the troupe being composed of dilettanti, with the exception of the manager, who is an actor by profession. In the same quarter are the library of the Egyptian society, and the Egyptian literary association. Ibrahim Pasha's library comprised the works of the most noted Arabic and Turkish authors. The same prince be-

gan a collection of Egyptian antiquities, and there is also a similar collection belonging to Mehemet Ali. The medical academy, established in 1827 by Mehemet Ali in the hospital of Abouzabel, was afterward transferred to Cairo, but, being unfavorably affected by the reverses of 1840, did not give many signs of vitality until 1856, when it was reestablished on a larger and improved scale in a charming locality on the shores of the Nile, within a short distance of Cairo. The academy, which was inaugurated on Sept. 10 of that year, is intended to contain different hospitals, botanical gardens, a library, cabinet, and museum of chemistry and natural history, and to teach all the branches of the medical and natural sciences, and is under the charge of Dr. Clot-Bey. An academy, chiefly designed for the military profession, but embracing the general branches of European education, was opened in 1855, by Solyman Pasha, received the sanction of the government in 1856, will admit 200 pupils, and is confided to the direction of an accomplished Egyptian poet and scholar Rifaah Bey. Among the charitable institutions of Cairo must be mentioned the private school for young orphan girls, kept by the sisters of the "Good Shepherd." There are about 60 girls in the institution, all natives of Egypt, but comprising Christians, Mussulmans, and Jews, without distinction of creed. A free pharmacy has also been opened by a company of sisters of charity, where the poor sick are supplied with medicine. In 1857 an annual grant of breadstuffs was conferred by the viceroy upon the former, and an annual contribution of \$1,000 upon the latter institution.—Cairo has 2 suburbs, Boolak, and Mus-el-Aatik, old Musr, or capital, to distinguish it from Cairo, which is now the *musr*. This latter suburb is also called Fostat, and by Europeans commonly, but improperly, Old Cairo. Both these suburbs are on the bank of the Nile, and serve as ports to the city. Fostat contains some ancient buildings, called the "granary of Joseph," still used for the storage of grain. On the island of Rodah, near the town, is the celebrated Nilometer, a rude, graduated column, many hundred years old, for indicating the height of the Nile during the annual inundation. From Fostat a canal of irrigation runs through Cairo, and is continued some miles beyond. It is supposed by some to form part of an ancient canal connecting the Nile with the Red sea. From this place also an aqueduct, nearly 2 miles long and supported by about 800 arches, built by the Arabs, conveys water to the citadel—that procured from the well above mentioned being brackish, and not used for drinking. Cairo is surrounded by walls, which are pierced by several gates, some of them of considerable beauty. In its environs are immense piles of rubbish, forming small hills. The climate is warm, but considered healthy, though, owing to the filthy condition of the city, and its inhabitants, the mortality is large.



Ophthalmia is very prevalent, and the plague occasionally makes terrible ravages among the population. The manufactures embrace silk and cotton fabrics, gunpowder, glass lamps, sugar, sal ammoniac, leather, weapons, and iron ware. Cairo is a central station of the overland route to India, and its commerce is considerable. The slave market is no longer held in the city. The black slaves are kept outside of the town, and the Circassian, Greek, Georgian, and other slaves, are kept in the private houses of the dealers. One of the most lucrative trades of Cairo is that in precious stones and jewelry. The remarkable resources of Cairo make it a favorite resort of Italian, Greek, French, Armenian, and other commercial adventurers, and of intriguers of all nations, who are constantly found hovering round the court of the viceroy, busy in scheming and in endeavoring to secure some profitable job. A railroad connects it with Alexandria, and caravans annually arrive from Darfoor, Sennaar, and Moorzook. Every year an immense caravan assembles in the neighborhood of Cairo to make the pilgrimage to Mecca, and as the pilgrims generally carry some goods with them for traffic, their departure and return is to Cairo a considerable source of wealth. Mehemet Ali established a number of schools after the European fashion, but his plan met with much opposition, and had but indifferent success. The Greeks have 2 churches in Cairo, the Armenians 1, the Copts about 12, and the Jews some 40 synagogues.—The city is said to have been founded about A. D. 970, by Moaz, an Arabian caliph from western Africa, who gave it the name of *El Kahirah*, or the victorious, in commemoration of his conquest of Egypt. This prince made Fostat his capital, but in the 12th century the seat of government was removed to Cairo, which henceforth became the *musr* or capital, while Fostat was called the old capital, *Musr-el-Antik*. At the beginning of the 15th century Cairo was one of the most flourishing cities in the world, the centre of commerce between Europe and India, and the entrepot of the trade of Africa. In 1754 it suffered severely from an earthquake; in 1798 it was taken by the French, who were however expelled by the English in 1801, and the city has since been a dependency of Turkey, under the rule of the viceroy of Egypt. The population has usually been greatly overestimated, and probably does not exceed 200,000, of which there are over 120,000 Mohammedans, 60,000 Copts, and many Jews, Franks, Greeks, and Armenians.

CAISSON, a French contrivance formerly much used in obtaining foundations for piers. Originally it was a roughly made strong basket, filled with stones, and sunk to the bottom. Afterward strong boxes of plank, well secured with iron bands, were used for this purpose. In them the stones were regularly laid in masonry, and the whole sunk together to the bottom. The foundations of Westminster and Blackfriars

bridges were thus prepared; and the French engineers, with whom this was a favorite method, introduced the same upon a gigantic scale in the construction of the breakwater at Cherbourg. (See *BREAKWATER*.) On our northern rivers it is sometimes used by building up an enclosure of logs on the ice in the winter, and filling this with stones, till the whole breaks through and sinks to the bottom.—The French have various applications for the word in the military art, all of which depend upon its signification of box or chest.—In architecture, it is a sunken panel in a flat or vaulted ceiling, or in the soffit of a cornice.

CAISTOR, or CASTOR, a market town and parish of Lincolnshire, England. It has an ancient church which stands on the site of Thongoeaster, a Roman station said to have been rebuilt by Hengist on as much land as an ox-hide cut into thongs would cover. The grammar-school here was founded in 1680. The manufacture of chairs of elm and ash is actively carried on. Pop. in 1851, 2,407.

CAITHNESS, the most northern county of Scotland, containing an area of 618 sq. m.; pop. 88,709. Dunnet Head, the most northerly point of Great Britain, is in Caithness. The surface of the county is flat. It is generally moorland, and but a small part is under cultivation. The climate is wet and severe, not from the intense cold, but from storms and general inclemency. The inhabitants are chiefly engaged in the fisheries alternated with agricultural pursuits, which are much encouraged by the chief landowners. The general state of the county is very primitive, population being scanty and the means of communication limited. Gaelic is still much spoken. This remote district was formerly the chief commercial outlet of Scotland, from which an active trade was carried on with northern Europe. The Caithness weights and measures were from this circumstance made the Scottish standard by David II. The harbor of Wick, the principal town, is commodious, and has been greatly improved by the expenditure of a considerable sum of money. The county gives the title of earl to the Sinclair family, and returns one member to the house of commons.

CAIUS. I. A Roman general, son of Marcus Agrippa and Julia, the daughter of Augustus Cæsar, who lived in the first century before our era. He was adopted by Augustus, served under Tiberius in Germany, and was sent as proconsul against the Arabians, Armenians, and Parthians. He reduced Armenia and routed Tigranes. He was treacherously wounded at a private interview with an enemy, and sank early and much regretted under the effects. II. A Christian theologian and bishop of the 3d century. His origin is uncertain, but he was a disciple of St. Irenæus. He had a conference with Proclus, the leader of the Montanists, and in 210 was appointed a bishop with the commission of preaching to the heathen in foreign parts. He regarded the epistle of St. Paul to the Hebrews as apocryphal, and was the first who wrote

against Cerinthus and the Millenarians. His last work was one aimed at those who asserted that Jesus Christ was only a man. III. CAIUS, Sr., bishop of Rome, died April 21, 296. He was a native of Dalmatia, and nephew of the emperor Diocletian. He succeeded Eutychianus Dec. 16, 288. At the time of the first persecution of the Christians by Diocletian, he was forced to find safety in an obscure retreat.

CAIUS, JOHN, the founder of Caius college, Cambridge university, born at Norwich, Oct. 6, 1510, died in Cambridge, July 29, 1573. His name was Kaye or Key, which he Latinized into Caius. He took his degrees at Gonville hall, Cambridge, and was chosen fellow of his college. While at Cambridge he distinguished himself by various translations from the classics. He spent some time in travelling on the continent, studied medicine at Padua, under Montanus and Vesalius, and took his doctor's degree at Bologna (1541). In 1542 he lectured at Padua on the Greek text of Aristotle, and in the following year made a tour through Italy, visiting the principal libraries, in order to compare the MSS. of Galen and Celsus. He returned to his native country in 1544, and practised, first at Cambridge, then at Shrewsbury, and afterward at Norwich. He was appointed by Henry VIII. lecturer on anatomy to the company of surgeons, London. In 1547 he became fellow of the college of physicians, and was appointed court physician to the young king Edward VI., which appointment he retained under Queens Mary and Elizabeth. In the reign of the latter, an exciting controversy arose between the surgeons and physicians of London, as to the right of the former to administer internal remedies for the sciatica. Dr. Caius argued the negative so ably on behalf of the physicians, that, although the surgeons' case was supported by the bishop of London and the master of the rolls, the decision was against the right of the surgeons to continue the practice of administering medicines. Dr. Caius was elected president of the college of physicians for 7 years in succession. There is extant a book of the college annals from 1555 to 1572 written by him in Latin, which is the earliest account we have of the transactions of that college. He was dismissed from the royal service in 1568 on suspicion of favoring the Catholic party. He obtained permission to endow and raise Gonville hall into a college, which still bears his name, and accepted the mastership thereof. The last days of his life were passed in the seclusion of his college. His works are numerous, on various subjects; many of them have been reprinted in modern times.

CAJANO, a village of Tuscany, in the Val Ombrone. It has a handsome villa, belonging to the grand duke, and an iron suspension bridge over the river. The celebrated Bianca Capello died here in 1587.

CAJEPUT OIL, a volatile oil, distilled from the leaves of a small myrtaceous tree or shrub, found alone in the island of Booro in the

Malay archipelago, a species of *melaleuca*, named the *cajeputi*, though possibly it is the *M. minor* of De Candolle. The name is a corruption of the Malay designation of the oil; *minyak kayu-putih*, "white wood oil;" the latter words being written by the Dutch, *cajoovuti*; and hence the English corruption, cajeput. The whiteness of the bark of the tree, is the cause of the name given to the oil. It is in high repute, not only as a liniment, but as an internal remedy among the different peoples of the archipelago, especially the Javanese. A few Chinese and Javanese traders of Batavia, are the sole factors of the trade in cajeput. The leaves are gathered on a dry hot day, and being steeped in water they commence fermenting, and are then distilled. The quantity of oil obtained is small, and it being extensively used by the Malays, the price it commands is very high. It is imported in glass bottles, and as received it is commonly of a fine green color, which has been attributed to the copper vessels, in which it was prepared. Copper has indeed been detected in some samples of it; but not always being found, the color is supposed by some to be the natural color of the oil, derived from the greenish principle or chlorophyll of the leaves. Whatever may be the cause, the color disappears by rectifying the oil. This is then a very thin fluid, transparent, of a warm, pungent taste and odor like that of camphor and turpentine mixed. It is soluble in alcohol, but only partially so in water; burns readily without residue, and is of specific gravity 0.914 to 0.927. It is often adulterated with oil of turpentine and camphor, or oil of rosemary. It is used in medicine for its highly stimulant quality, either as an external application mixed with the same quantity of olive oil for gouty and rheumatic pains, or taken internally in cases of chronic rheumatism, and spasmodic affections of the bowels. Some have highly recommended its use in cholera. It is introduced into the cavities of aching teeth, to relieve the pain.

CAJETAN, or CAJETANUS (TOMMASO DE VIO), an Italian cardinal, born July 25, 1470, at Gaeta, died in Rome, Aug. 9, 1534. He entered the order of Dominican friars, graduated as a doctor, and was elected general of his order in 1508. When Pope Julius II. was summoned to appear before the council of cardinals assembled at Pisa and afterward at Milan, in the interest of King Louis XII. of France, Cajetan undertook his defence, asserting that to the pope alone belonged the power of convening a council. He was appointed cardinal in 1517 by Leo X., and sent as a legate in Germany to bring the emperor Maximilian and the king of Denmark into the league formed against the Turks. His efforts to make Luther recant his doctrines proved in vain. In 1519 he was present, as Roman legate, at the assembly of the electors of the empire, and sided with the partisans of Don Carlos of Spain, who was elected emperor under the name of Charles V. Then he returned to Rome, but was soon ordered by Adrian

VI. to Hungary, which was invaded by the Turks. In 1524 he was recalled to Rome by Clement VII. On the capture of Rome in 1527, being taken prisoner by the imperial troops, under the command of the constable of Bourbon, he had to pay 5,000 crowns as a ransom for his liberty, which sum he was obliged to borrow from his friends.

**CALABAR**, New, the name of a river and town in Africa, lying about 80 miles west of Old Calabar. The river is one of the mouths of the Niger, at 20 miles from the sea is 6 fathoms deep, and enters the bight of Biafra by the same estuary as the Bonny. The town stands on an island in the river about 25 miles from the sea, and contains upward of 800 houses. Its trade consists in slaves, ivory, and palm oil, for which European goods are received in exchange.

**CALABAR**, Old, a country of Guinea in West Africa, on the Old Calabar frith, in the bight of Biafra, at about lat. 5° N. and long. 8° E. It is traversed by the Old Calabar and Cross rivers, and has about 70,000 inhabitants, two-thirds of whom are slaves. Its principal towns are Duke Town and Creek Town, the former with a population of 7,000, the latter of 6,000. The chiefs and freemen are engaged in the palm-oil trade with British merchants. They bring the oil from the interior, and receive in return for it English wares and manufactures. Several missions have been established in the country, which have met with encouraging success.

**CALABASH TREE**, (*crocentia oujele*), is a native of the West Indies and the continent of America. It grows to about the height and bulk of an apple tree, with crooked horizontal branches. It has wedge-shaped leaves, pale white flowers on the trunk and branches, and a roundish fruit, from a few inches to a foot in diameter. The calabash fruit contains a pale yellow, juicy pulp, of an unpleasant taste, which is deemed a valuable remedy in several disorders, both internal and external. The uses to which the fruit of the calabash tree is applied are very numerous. It is covered with a greenish-yellow skin, enclosing a thin, hard, and almost woody shell, which is employed in lieu of various kinds of domestic utensils, such as bowls, cups, and goblets of every description. These shells are so hard and close-grained that, when filled with any fluid, they may sometimes be put on the fire and used as kettles without injury. They are also cut and carved, variously stained, and polished, as ornamental vessels.

**CALABOZO**, a town in the province of Caracas, Venezuela. It was formerly a mere Indian village, but has now about 5,000 inhabitants, most of whom own large herds of cattle.

**CALABRIA**, the southern part of the kingdom of Naples and of the Italian peninsula, lying between the parallels of 22° 48' and 32° N. lat., and having an area of over 6,000 sq. m.; total pop. in 1856, 1,187,782, comprised in 3 provinces: Calabria Citra, 456,018; Calabria

Ultra II., 898,584; Calabria Ultra I. 338,180. The Apennines reach through the whole length of Calabria, forming a large irregular ridge in the centre, with branches toward the sea in either direction. Between these mountain branches are numerous valleys, and near the shore extensive plains, where the vine, the mulberry, and the olive, the orange, lemon, and fig trees grow luxuriantly. Some of the mountains produce the manna ash, from which by an incision into its bark manna is abundantly gathered. Many of the northern valleys are used for pasturage; and the principal wealth of some of the districts is invested in flocks of sheep. Silk has been for several centuries the principal article of manufacture; but the increased tax which has been set upon it has diminished its amount of late. Calabrian white and red wines are noted for their excellent taste. The natives of Calabria are a hardy and enduring race of men; of a passionate disposition, and much addicted to playing cards. Numerous bands of gypsies, and a distinct sallow and muscular race of Arnauts, also subsist in the country. Calabria is subject both to earthquakes and inundations. In the middle of the 12th century Calabria reverted to Roger II., king of Naples and Sicily, and has since remained under the sway of that monarchy, the presumptive heir to the Neapolitan crown bearing the title of duke of Calabria.

**CALAHORRA**, a town of Spain, in Old Castile, in the province of Logroño, on the river Cidacos near its junction with the Ebro. It is old and decayed in appearance, and its houses are generally mean; its cathedral, in the mixed Gothic style, and an episcopal palace, are alone worthy of note. Calahorra is the ancient Calagurris, and is memorable as the birthplace of Quintilian, and for its desperate but unsuccessful resistance to a siege in the year 72 B. C. The remains of Roman towers and an aqueduct may still be traced. The celebrated warm baths of Amedillo are within a short distance of Calahorra. Pop. in 1852, 5,990.

**CALAIS**, a city of Washington co., Me., at the head of the tide on the St. Croix, 30 miles from the sea, at the easternmost extremity of the state, and opposite the English town of St. Stephen, the river St. Croix forming part of the boundary between the United States and the British possessions on our north-eastern frontier; lat. 45° N., long. 67° W.; pop. in 1855, 6,119. It was incorporated under a town government in June, 1809, and erected into a city in 1850. It is a place of large trade in lumber, which is manufactured from the extensive forests upon the upper waters of the St. Croix. Ship-building is also a growing branch of its trade. The tide rises here from 20 to 28 feet. Its lumber is sent to the ports of Great Britain, the West India islands, and to the coastwise ports of the U. S., going south as far as the Potomac. The arrivals of vessels in 1857 numbered 521, and the departures 522. The exports of sawed lumber from the river in that year were 65,000,000

feet, of which about 80,000,000 went to foreign ports. The other exports were 68,000,000 laths, 17,000,000 shingles, 2,000,000 pickets, 90,000 clapboards, 8,000 sugar boxes, 4,000 hackmatac ship-knees, and 1,400 cords of wood and bark. The machinery for sawing lumber is propelled exclusively by water power, and consists of 68 mills, and 40 lath and shingle machines. Thirty-six of the mills contain "gangs" of saws, each gang consisting of 16 movable upright saws in a single frame, 26 mills run single saws, and 2 run circular saws, the whole having a capacity of production equal to 700,000 superficial feet of sawed lumber per day. The water power is of a superior character, the large lakes at the head of the river acting as reservoirs during the dry season, and preventing sudden rises by freshets; the maximum rise of the river from the lowest point of depression being less than 10 feet. A railroad conveys the lumber from the mills to the wharves, and extends 20 miles up the valley of the river. The town imports annually about 100,000 bush. of corn, 20,000 bbls. of flour, and 2,000 bbls. of pork. It owns 8,000 tons of shipping in coasting vessels and steamers. It has a steam flour mill, an establishment for grinding and calcining plaster of Paris which turns out about 15,000 casks per annum, an iron foundry, a dry dock, several grist mills, and a number of small factories for various kinds of wood manufacture. Two steamboats ply upon the river, and a semi-weekly line of steamers runs in connection, to St John on the east, and Portland and Boston on the west. A tri-weekly stage runs northerly to the interior 100 miles, connecting with the upper valley of the St. John river in the province of New Brunswick, and two daily stages run to the west. The city contains 8 churches, 16 school houses, 1 high school, and 1 academy. Education is gratuitous. The average annual attendance at the schools is 700. The amount of money raised by voluntary taxation in 1858 was \$16,000, or about 1 per cent. upon the full market value of the property assessed. It was for schools \$3,000, streets and highways \$2,000, poor \$2,000, city expenses \$2,500, interest, deficiencies, &c., \$3,500, state and county taxes \$3,000. Within the city limits, at the mouth of the river, lies St. Croix or Big island, on which Pierre du Gast, Sieur de Monts, wintered in 1604-'5, on the voyage in which he founded Port Royal in Nova Scotia, the first permanent French settlement in America.

**CALAIS**, a seaport town of France, department of Pas de Calais, on the straits of Dover, 29 miles N. N. E. of Boulogne, 225 miles N. N. W. of Paris. It had once some pretension to antiquity, being regarded by the learned as the *Portus Itius*, whence Cæsar sailed for England; but it has been proved beyond doubt that this honor belonged to the little village of Wissant. Calais is not mentioned before the 11th century, when in 997 Baldwin IV., count of Flanders, improved the port, which was protected by the erection of 2 towers. In 1224, Philip of France, count of Burgundy, built a wall around the

town and a castle at its entrance near the seashore. In 1347, Calais, after a siege which lasted no less than 11 months, was obliged to surrender to Edward III., and was saved from entire destruction by the heroic devotion of Eustace de St. Pierre and his 5 companions. The citizens were compelled to leave the town, and an English colony was established here. After being more than 200 years an English city, Calais was, in Jan. 1558, retaken by the celebrated Francis, duke of Guise. The Spaniards took possession of it in 1596, but had to surrender it on the peace of Vervins, 1598. It was vainly besieged by the Spanish army in 1657, and twice bombarded by the English during the reign of Louis XIV. In 1808, during the preparations at the camp of Boulogne, an English fleet attempted, but failed, to surprise it. The same year it was visited by Napoleon. On April 24, 1814, Louis XVIII. landed here, which event has been commemorated by the erection of a pillar. The town is now a fortress of the 2d class, surrounded by newly improved walls and bastions, and protected by a strong citadel commanding also the port. It is neatly built, with regularly laid-out streets and clean houses, so much so that, according to a traveller, it looks like the picture of a city. The ramparts, which are planted with trees, form an agreeable promenade. The gate on the road to Paris, constructed in 1685, is a fine piece of architecture. Very few monuments deserve to be mentioned, with perhaps the exception of the parish church, built by the English, which is a fine building with a lofty spire. Manufactures are unimportant, except those of tulle (bobbinet), which employ no less than 600 looms, each loom requiring the attendance of a number of workmen, beside 8,600 women and children for the preliminary preparations. This branch, as well as others, would have been still more prosperous, if not prevented by the war regulations governing the country in the neighborhood of a fortress. The principal trade of Calais consists in carriages, French wines, brandies, and eggs, exported to Great Britain, for which are received in return butter and leather from Ireland. Vessels are fitted out for the mackerel, herring, and cod fisheries. The coasting is more important than the foreign trade. At present, the principal dependence of Calais is on the resort of travellers to and from England, which is somewhat diminished by the competition of Boulogne. It has daily communication by steamer with several English ports, and has had telegraphic communication by a cable across the channel since 1851. The port is of easy access, and can admit vessels of 400 or 500 tons, but is laid bare at ebb tide. The entrances in 1853 consisted of 1,504 foreign vessels, representing 178,875 tons; of 53 coasting vessels, tonnage, 8,197; and the clearances of 1,806 foreign vessels, tonnage 140,866; and of 44 in the coasting trade, tonnage 8,079. In 1857, the entrances and clearances of foreign vessels were collectively 2,808, tonnage 424,000. The town communicates by the Aa with the St. Quentin ca-

nal, and by a branch with the northern railroad, both which facilities have lately enhanced its inland trade. Daniel O'Connell was educated in the Jesuit college here for the priesthood. Pigault-Lebrun was born here, and Lady Hamilton, Nelson's Emma, died here in 1815. Pop. 11,000, comprising about 400 English.

**CALAMANCO**, a woollen stuff of a fine gloss, and chequered in the warp, the checks appearing on the right side. It is manufactured in England, and extensively in the Netherlands.

**CALAMANDER WOOD**, the hardest and most beautiful species of all the fancy woods imported from Ceylon. It is so hard that edge-tools cannot work it, and it has to be shaped by rasps and files. It exhibits great richness and variety of color, very different shades being closely intermixed, the prevailing one being a fine chocolate. It is so expensive that it is imported only occasionally.

**CALAMBUCO**, a valuable timber tree, found alone in the northern provinces of the island of Luzon. For shipbuilding it is esteemed in the Philippines as superior to the live oak, or the teak. It resembles the latter when dressed, has the same dark unctuous appearance, and like it is never attacked by the omnivorous and terribly destructive white ant of the Malay archipelago. Several colonial ships built of this timber, 50 years ago, are reported to be still seaworthy. The experiments made at the arsenal of Manila upon calambuco wood exhibit great strength and elasticity. Beside ships, a great variety of agricultural, mechanical, and warlike instruments are made from this timber. This name is also given in the Malay archipelago, to a tree which produces an odoriferous wood, the *agila*, or eagle wood, and aloes wood of commerce. It is found chiefly in Siam, the Malay peninsula, and in the northern portion of Sumatra; but is also found in the Indian peninsula, where it is called *agharu*; and hence, it is sometimes named by the Malays, *kayugharu*. The perfumed wood is supposed to be a diseased tumor in the tree, arising from the wound of a timber worm. The thickened, resinous sap formed in these tumors, is used as an incense in all eastern countries. There is much discrepancy in the statements of East Indian naturalists, relative to the tree yielding the genuine *agila*; and this perfume and aloes wood have been supposed to be the products of different trees; but it is the heart of the *kayukalambak*, or calambuco tree, which produces the aloes wood, and in the bark the *agila* is formed. The *agila* does not yield its exciting aroma until it is burned; but the calambuco or aloes diffuses its fragrance when rubbed in the hands.

**CALAME, ALEXANDRE**, a living Swiss landscape painter, of Neuchâtel, who settled at an early age in Geneva, where he became the pupil of Diday, and whither he returned after having spent some time at Rome. He has produced pictures of the most prominent scenes of the Alps, and in his power to render their pictur-

esque majesty, he is hardly surpassed by any living painter.

**CALAMIANES**, the name of a group of islands, and province of the Philippine archipelago. The group consists of the large islands: Busuagan, Calamian, Linacapan, Coron, Dumarán, Iloe, Lutaya, Carandaga, and about 240 unimportant islands and islets. This group and the northern portion of the great island of Palawan, called Paragua, constitute the province, which is the poorest and least populous of the 35 divisions constituting the Spanish Philippines. Area about 2,800 sq. m.; pop. 17,320. The inhabitants of the group and of the Spanish portion of Palawan, are of the Bisaya race; and have been converted to Christianity by the Spanish missionaries. Since the conversion, the improvement in the condition of the Paraguans, especially, has been most notable; before this occurrence they lived in naked savagery, like the southern Palawans, who recognize the dominion of the piratical sultan of Sooloo; at the present day the Paraguans live in communities, in neat dwellings of their own construction; they manufacture their own clothing, and their agricultural and mechanical implements; they export ratans, bees' wax, and birds' nests; and contribute a substantial amount of revenue to the support of the beneficent government, which has done incomparably more to advance the welfare of its Indian subjects, than any other European government in the eastern hemisphere. The Calamianes group does not partake of the volcanic character of Luzon, and other great islands of the archipelago; it is much less productive, subject to a hot, humid, and insalubrious atmosphere, and the agricultural labors of the inhabitants are greatly thwarted by the destructive voracity of great numbers of wild hogs, porcupines, deer, squirrels, parrots, and other animals and birds. This superabundance of wild animal life prevails mostly in the islands Busuagan and Calamian. The inhabitants are oftentimes disposed to return to their former sylvan life, when subsistence was so easily procured by the chase; but their philanthropic Spanish pastors encourage and aid them in the construction of better defences for the preservations of the fruits of their agricultural labors, and impress upon them the advantages of systematic labor, and the comforts of civilization which spring from it.

**CALAMINE**. This name is given to 2 different ores of zinc, one of which is the silicate, and the other the carbonate. The most common ore worked for zinc is the anhydrous carbonate. It occurs crystallized in rhomboidal forms, of vitreous lustre, and a little pearly, of white, yellowish gray, or brown color, semi-transparent or opaque, in forms botryoidal, stalactitic, and reniform, and in crystalline incrustations. Its hardness is 5, its specific gravity 4 to 4.45. It contains oxide of zinc 64.81, and carbonic acid 35.19. It dissolves with effervescence in acids, and is also soluble in ammonia moderate ly heated. It occurs in thick beds and irregular

masses, among calcareous rocks of the secondary and metamorphic formations. It is rarely found unmixed with oxide of iron and the silicate of zinc. It is extensively worked for the production of zinc paint at Vieille Montagne, between Liège and Aix la Chapelle. In this country it is found associated with hematite iron ores, and also with the sulphuret of lead or galena. It is worked near Bethlehem, Lehigh co., Penn., and in the vicinity of Lancaster. It is described in Dana's "Mineralogy" by the name of Smithsonite. The hydrous silicate of zinc, also called electro-calamine, often accompanies the anhydrous carbonate, and it is usually the two minerals mixed which are designated by the name of calamine. It occurs in forms similar to those of the carbonate, and in crystals derived from a rhomboidal prism. Its hardness is 4.5, or when crystallized, 5; its specific gravity from 3.16 to 3.49. It dissolves by the aid of heat in sulphuric or muriatic acid, and gelatinizes on cooling. It becomes strongly electric by heat, to which property it owes its name. Its composition is silica 25.1, oxide of zinc 67.4, and water 7.5.—In pharmacy, the term calamine is applied only to the native carbonate, which has always been employed in an impure state. It is often sold, too, of a spurious quality, consisting principally of sulphate of baryta and carbonate of lime, with mere traces of zinc. It is said that the miners in England recognize 2 kinds of calamine: one, which they call brass calamine, is sold to the makers of brass; and the other, baryta calamine, which is the amorphous sulphate of baryta, is sold to the druggists for native carbonate of zinc. In medical preparations calamine is heated to redness, and reduced to an impalpable powder. By this calcination it is converted into oxide of zinc, mixed with the impurities of the ore. In this state it is called prepared calamine. It is used as an external application only, sometimes in the form of cerate, but more commonly it is dusted upon ulcerated and excoriated parts, upon which it acts as a mild astringent and exsiccant. In consequence of the impurities of this article, carbonate of zinc, obtained by precipitation, is substituted for it in the "United States Pharmacopœia."

**CALAMIS**, statuary and embosser of Athens, was a contemporary of Phidias, and flourished between 467 and 429 B. C. Pliny bestows the highest praises upon his horses. Among his most celebrated works were a statue in metal of Apollo Alexicaeos, in Athens, in 429 B. C., and which has erroneously been supposed to be the Apollo Belvedere; a colossal statue of Apollo in bronze, 80 cubits in height, which was taken to Rome by Lucullus; and a Jupiter Ammon consecrated by Pindar at Thebes.

**CALAMITE**, an extinct species of fossil plants found abundantly in the strata of the coal formation, but entirely wanting above the secondary formation. They are large cylindrical stems, articulated at intervals like the reed, and sometimes 14 inches in diameter, as is seen in

a specimen at Leeds. They are generally converted into sandstone, shale, or fire-clay, whichever of these rocks it may be, in which they are found. They have usually been regarded as cryptogamous plants of the *equiset* family; but by the investigations of Brongniart, it appears that these obscure stems cannot belong to any tribe of flowerless plants, but are more nearly allied to the gymnospermous dicotyledons. But Professor Williamson, while he admits their remarkable affinities with this family, is of opinion that the arrangement of their tissues differs widely from that of all known forms of gymnosperms.

**CALAMUS** (Gr. *καλαμος*). I. A sort of reed, which the ancients used as a pen for writing on parchment or papyrus. Those which came from Egypt and Cnidus were the most esteemed. When the calamus became blunt, it was sharpened with a knife. It was split into two nibs, like our modern pens. This instrument must not be confounded with the stilus, which was only used for writing on wax tablets. II. In the pastoral poets of antiquity, a pipe of reed, on which enamored shepherds would play; in construction probably resembling a modern fife or flageolet.

**CALAMY**. I. EDMUND, an English Presbyterian divine, born in London in Feb. 1600, died at Enfield, Oct. 29, 1666. He was educated to his baccalaureate at Pembroke hall, Cambridge. But at that time the Arminian controversy ran high, and Pembroke was in the interest of the Arminian party. Young Calamy expressed himself with so much freedom in favor of the opposite faith that he was cut off from a fellowship. He was, however, by Dr. Felton, bishop of Ely, appointed to a vicarage, and at the death of his patron was appointed lecturer at Bury St. Edmund's. Meanwhile, he became more and more opposed to the high-church party. Finally, on the publication of the Scottish liturgy and the "Book of Sports," Calamy left the established church, and spoke and acted plainly as a non-conformist. By the earl of Essex he was presented with the living of Rochford, which position he was compelled to resign, on account of his health, soon after. He now removed to London, and was afterward chosen minister of St. Mary, Aldermanbury. He acted a prominent part as a non-conformist divine, though a moderate one, during the rest of his life. Although an opponent of episcopacy, his opinions of which he published in a treatise, he strenuously urged the propriety of good treatment to Charles, and was in favor of the restoration. When, therefore, it was decided to invite the exiled son to the throne of his father, Calamy was appointed as one of the commission for that purpose. Calamy had been an active member of the assembly of divines, appointed by the house of lords in 1641 to report a plan for the reconciliation of the ecclesiastical difficulties of the realm. This was a project congenial to his views and temper. So long, therefore, as there was any hope of ac-

completing it through the agencies and on the plan then suggested, he retained his position; but when the Savoy conference failed of any such result, he made one more unsuccessful attempt, and then, on the passage of the uniformity act (1662), resigned his living, having previously declined a bishopric from the royal favor, because of the strenuous conditions with which the gift was accompanied. For the remainder of his life he lived in retirement, venturing to preach only on one occasion (in the absence of the curate of the church he frequented), on which occasion he gave offence to the royal party, and was imprisoned in Newgate. He was soon, however, released. The great fire of London so affected him that it precipitated his death. II. EDMUND, the grandson of the above, born in London in 1671, died June 8, 1732, was educated in England and at the university of Utrecht, where he enjoyed the distinguished favor of many literary men. He had the offer of a professor's chair in the university of Edinburgh, which he declined, and returned to England, having favorable introductions from scholars on the continent to distinguished English divines. But Calamy soon determined to be a non-conformist, which determination he carried out with great decision and earnestness to the end of his life. Beside holding various important appointments as a non-conformist divine, he published some works which evince his talent and zeal. Among them may be mentioned a continuation of the "Life and Times of Baxter," which went through 2 editions during his lifetime, and brings the history down to the passage of the "Occasional Bill" (1713); a vindication of his grandfather and several other non-conformists (1718); and a continuation of the lives of ejected ministers, lecturers, masters, &c., after the restoration (1728).

CALANCHA, FREY ANTONIO DE LA, a Peruvian writer, born at Chuquisaca toward the end of the 16th century, died near the middle of the 17th. He was member of an Augustine convent at Lima, and in 1619 prior of his order at Truxillo. During the earthquake which in that year devastated that city, Calancha displayed the greatest firmness, and putting himself at the head of his order, he became of great service to the frightened inhabitants. He wrote a work on Peru, which was published at Barcelona in 1639, under the title of *Cronica moralizada del orden de San Augustin en el Peru*. In 1658 an abridged French edition of this work appeared at Toulouse, under the title of *Histoire de l'Eglise du Perou*.

CALANDAR, CHARAF BOU ALL, a Mussulman fanatic and saint of the 18th century. At Delhi he became acquainted with Khadja Ootb Ouddin, and in Asia Minor he was on terms of intimacy with Chams Tabriz, a Persian poet, and with Maulavi Roum, a Mussulman mystic, the founder of the order of the Maulavi, and the author of the poem "Masnavi." In his youth Calandar had devoted himself to the

study of the natural sciences; but as soon as (to use his own expression) divine truth had flashed upon his mind, he threw all his books into the river Jumna, and consecrated the rest of his life to religion. After having completed his extensive travels, he returned to his native town, where he stood in the odor of sanctity. Even miracles were ascribed to him, and to this day devout Mussulmans make a pilgrimage to his grave.

CALANDSOOG, a village of Holland, on the North sea. It was the scene of a victory gained, after great loss, by the allied British and Russian forces over the Dutch, Aug. 27, 1799.

CALAS, JEAN, a French Protestant, born in 1698, in Languedoc, martyred March 9, 1762. He was a merchant at Toulouse, his wife an English lady of French extraction. One evening in Oct. 1761, after the family had retired from supper, his eldest son, Marc Antoine, a young man addicted to gambling, and of a gloomy disposition, was found dead at the entrance to his father's house. Beside the members of Calas's family, there was at the time no person in his house excepting M. Lavaysse, a young gentleman from Bordeaux. When the corpse of young Calas was discovered, the greatest excitement ensued, and the multitude of Toulouse, who especially at that time labored under the influence of religious agitation, ascribed the death of the young man to the fact that he had intended to become a convert to the church of Rome, and that his family had murdered him in order to prevent his secession from Protestantism. The honors of martyrdom were paid to young Calas by the Dominican friars and other Catholic bodies of Toulouse. He was buried with great pomp, a catafalque erected upon his grave, and a skeleton placed upon it, with a martyr's palm in one hand, and the act of abjuration in the other. M. Calas the father was sentenced to die on the wheel by a tribunal of 18 judges, only 5 of whom dissented from the verdict. His youngest boy, doomed to exile, fell into the hands of the priests, who threw him into a convent, with a view of forcing him to abjure Calvinism. The daughters were imprisoned in a nunnery. A Catholic servant in Calas's family, and Lavaysse, were acquitted, although there was much ill feeling against the latter, as he was suspected of being a missionary of the Huguenots of Guienne. The wife succeeded in escaping to Switzerland, where Voltaire, who then resided at Ferney, became interested in the case; and it was due to his interference that Elie de Beaumont and other eminent lawyers took it in hand, and obtained a reversal of the judgment. The Calas family were declared innocent, and a pension of \$6,000 granted to them by Louis XV.

CALASIO, MAURO DE, an Italian Hebrew scholar, born 1550, in the kingdom of Naples, died 1620, perfected his knowledge of Hebrew while member of a Franciscan convent to such an extent that he became professor at Rome,

and author of a Hebrew grammar and dictionary. His fame, however, rests upon his concordance of the Bible, which gives not only the Hebrew, but also the Latin version, affording at the same time opportunities of comparing the text with the Syriac, Arabic, and Chaldee languages. This work, which is highly valued by theologians of all denominations, was published one year after his death, at the expense of the popes Paul V. and Gregory XV., and edited by one of Calasio's friends, Michel Ange de Saint Romule. A 2d edition, revised by Romain, appeared at London in 1747, but the original edition is the best.

**CALASUNGAY**, the name of a numerous tribe of once piratical savages, inhabiting the Spanish province of Misamis, in the island of Mindano. Ten years ago this people were in the lowest state of nature in which man is found, seeking shelter with apes in tree tops and the clefts of rocks, and, like them, subsisting upon the raw produce of the forest and the water. In 1849 a mission was established among them by Spanish missionaries, of the same indefatigable and devoted class who have brought about such remarkable changes in the mental and physical condition of many of the wild tribes of the Philippine archipelago. The Calasungays have abandoned their old haunts in the inaccessible jungles bordering upon the Gunung Inagawan range of mountains, and are now to be seen established in communities, cultivating the soil of the plains that border upon the Lupagan and Leagan rivers, and the bay of Ilygan. Considerable quantities of grain gold have been recently discovered in several streams descending from Gunung Inagawan, and a large portion of the Calasungays are actively engaged in gold washing. The auriferous soils of Mindano have long been esteemed, by well-informed Spaniards in the Philippines, as much richer than those of Borneo, Sumatra, Celebes, or of any other portion of the Malay archipelago. But the wild and apparently irreclaimable character of the northern tribes of Mindano, and the desperate ferocity of the Lanun pirates, who possess its southern coast, have effectually checked Spanish enterprise upon the island until recently. The missionaries have opened the way to the gold regions, and to many valuable products peculiar to this island; and should their success with other tribes be equal to what has been effected among the Calasungays, the island of Mindano, deemed hitherto inaccessible on account of the ferocity of its people, will present as interesting a spectacle as Luzon or New Zealand, which exhibit the best specimens of a recent barbarism converted to civilization.

**CALATAYUD**, a Spanish town in the province of Saragossa, on the Jalon. The desolate and half ruinous condition of its streets destroys the favorable impression produced by the external appearance of the town. It stands in the midst of a fertile district, and provisions of all kinds are cheap. There are some factories in the town, beside an episcopal palace, convents,

churches, barracks, hospitals, and various public buildings. Mineral springs and stalactitic caves exist in the vicinity, and the remains of the ancient Bilbilis, the birthplace of Martial, are not far off. Pop. in 1852, 6,885.

**CALATRAVA**, **José María**, a Spanish statesman, born at Merida, Feb. 26, 1781, died Jan. 24, 1846. A lawyer by profession, he distinguished himself as an orator in the cortes of Leon and Cadiz, and was exiled in 1816 on account of his liberal principles. In 1820, when the new constitution was promulgated, he was allowed to return, was elected to the national cortes by his native district, and took a prominent position in opposition to Martinez de la Rosa. During the revolution of 1823, he officiated as minister of justice under the revolutionary government, at Seville and Cadiz, but on the advent of a French army in aid of Ferdinand VII., he was obliged to escape to England, where he remained until 1830, and where he continued to agitate as member of the junta of Bayonne. In 1834, after the death of the king, he brought about the establishment of juntas at Badajoz, Saragossa, &c., which proclaimed the constitution of 1812; and the result of this agitation was that, on June 18, 1837, Maria Christina promulgated a constitution more adapted to the requirements of the people. For some time he was member of the cabinet as minister of justice, but dissenting from the policy of Martinez de la Rosa, he tendered his resignation. He continued, however, to organize juntas, and, owing to his machinations, Espartero's deposition from the regency was decided upon by the cortes, Aug. 16, 1843. Subsequently Calatrava was elected member of the Spanish senate by several provinces, and this nomination was ratified by Queen Isabel II., soon after her advent to the Spanish throne.

**CALATRAVA LA VIEJA**, a ruined city of Spain, on the Guadiana. It contains the remains of the ancient city of Calatrava, which during the middle ages was considered the key of the Sierra Morena, and was well fortified. The knights of Calatrava, members of a military order founded here in 1158, distinguished themselves by their exploits in the Moorish contests, but with the lapse of years the institution gradually degenerated, and toward the close of the 15th century the grand-mastership was united to the crown. Since 1808 it has been used as an order of merit. The ancient name of Calatrava was Oretum or Oria.

**CALAVERAS**, a county in the N. central part of California, bordering on Utah, and bounded on the S. E. by the Stanislaus river. It comprises an area of 8,000 sq. m. The Sierra Nevada, or Snowy range of California, passes through its centre, and it is drained by the Calaveras, Mokelumne, Walker's, and Carson's rivers. On Ohyote creek, 4 miles S. of Vallecito, are 3 natural bridges. Mining, especially for quartz, employs a large proportion of the capital of the inhabitants. The productions in 1856 were estimated at 25,495 bushels of



wheat, 67,181 of barley, and 16,940 of oats. There were 14 saw mills, 1 grist mill, 26 quartz mills, and 2 newspaper offices. Value of real estate, \$219,125. Capital, Mokelumne Hill. Pop. in 1852, 20,192.

CALAVERAS, a river of California, rises among the hills at the foot of the Sierra Nevada, in Calaveras co., and after a westerly and south-westerly course joins the San Joaquin river in the county of that name.

CALCAGNINI, OLLIO, an Italian scholar, born at Ferrara, Sept. 17, 1479, died Aug. 27, 1541. After having served in the armies of the emperor Maximilian and of Pope Julius II., and been employed on diplomatic missions to Rome by the duke of Ferrara, Alfonso I., he became, on his return, canon of the cathedral, and professor of literature at the university of his native town. Of his writings, which include treatises on philosophy, astronomy, and some poetry, his *Quæstionum Epistolicarum libri III.* (Amberg, 1608), his *De Rebus Egyptiacis Commentarius*, and his essays on some of the customs and ceremonies of antiquity, are the most interesting. He was a friend and correspondent of Scaliger, Alociati, and other eminent scholars of his day.

CALCAIRE GROSSIER, the building stone of Paris, constituting with the blue clay of the basin of London, which contains many identical shells, and may be said to be coeval with the calcaire, the types of the eocene tertiary series, as established by the English geologist Lyell.

CALCAR, JOHAN STEPHAN VAN, a Flemish painter of the Venetian school, born at Calcar in the duchy of Cleves, in 1499, died in Naples, 1546, studied at Venice under Titian, and subsequently practised his art at Naples. He excelled in imitating the manner of Titian and of Raphael. At Padua he designed the illustrations to Vesali's anatomical work, which for a long time were ascribed to Titian. Rubens possessed a "Nativity" by him, in which the light proceeded from the infant, which at the death of Rubens was purchased by Sandrart, who subsequently sold it to the emperor Ferdinand. One of his portraits of a male figure with red beard, executed by him in 1540, is in the Louvre.

CALCAREOUS SPAR, also called calc spar, the very common mineral, crystallized carbonate of lime. It is remarkable for the great variety of its crystalline forms derived from its primary obtuse rhomboid, no less than 600 modifications having been described and figured. It is seen in a pure state in the transparent rhomboidal crystals of Iceland spar, so called because the finest were originally brought from Iceland. These exhibit the property of double refraction most perfectly. Calcareous spar is white or transparent, except when mixed with some foreign ingredients, which impart to it various shades. It is so soft as to be easily cut with a knife, its hardness being rated at 2.5-3.5. Its specific gravity is 2.5-2.77. Acids dissolve it readily, causing a strong effervescence as the carbonic acid is expelled.

This is also expelled by heat, the mineral being then converted into quicklime, or the protoxide of calcium. The proportion of this in calcareous spar is 56 per cent., and of carbonic acid 44 per cent. Some of the finest specimens of this mineral are from the Rossie lead mine of St. Lawrence co., N. Y., where a single crystal was found weighing 165 lbs. It is a common gangue in metallic veins, and often forms veins in rock formations of almost all ages, even when no ores are present. It possesses no value different from that of ordinary limestones; and these are from their great abundance much more cheaply obtained for the manufacture of quicklime, or for fluxes of ores, than the crystallized mineral could be.

CALCAREOUS SPRINGS. Rain water, containing carbonic acid gas, and other waters also more highly charged with this gas, have the property of dissolving the carbonate of lime they come in contact with, as they percolate through the strata of rock beneath the surface. When the water rises in springs, it comes charged with calcareous matter; and as it evaporates, this load is deposited in the form of calcareous incrustations. Such springs sometimes rise through granitic rocks and other formations, which contain little or no limestone, this being in these instances supplied to the water from some distant formations it had flowed through. By this provision of nature the carbonate of lime required by shell-fish and plants is distributed abundantly in places that would otherwise be destitute of it. It is stated by Sir Charles Lyell that in central France, a district where the primary rocks are unusually destitute of limestone, springs copiously charged with carbonate of lime rise up through the granite and gneiss. Some of these are thermal, and probably derive their origin from the deep source of volcanic heat once so active in that region. One of these springs near Clermont has formed by its incrustations an elevated mound of travertine, or white concretionary limestone, 240 feet in length, and at its termination 16 feet high and 12 wide. Another in the same region rises in a gneiss country at the foot of a volcanic cone, at least 20 miles from any calcareous rock. The deposit of these springs is often a spongy, porous substance called calcareous tufa, or calc tuff. It takes the impression of the objects it encloses, as leaves, twigs, and branches of trees, and retains the forms, if not the material itself, in its solid substance. When freshly quarried, it is easily cut into any shape, and is therefore conveniently applied to building purposes. The Grecian temples of Paestum are built of it, and the stone has in them assumed great strength and solidity. In the central parts of New York, especially in the vicinity of Seneca and Cayuga lakes, deposits of this nature are very frequent. They form beds of marl beneath muck swamps, and in the bottoms of ponds and lakes. Wherever the calcareous water flows, the aquatic plant *chara* grows abundantly, so as

sometimes to obstruct the water courses, and render its removal necessary. As the plant grows, its stems become incrustated with carbonate of lime, and new green growth continues to shoot out beyond, which is soon to be filled in with the same stony incrustation. The abundance of calcareous matter is as favorable to the growth of fresh-water testacea as of the chera; and those which are found in the oldest of these formations are still of the common living fresh-water species.

**CALCASIEU**, a river of Louisiana, not navigable. It rises in the western part of the state, flows through the parish of the same name, and after a southerly course of 250 miles enters the gulf of Mexico.

**CALCASIEU**, a south-western parish of Louisiana, bordering on Texas, and reaching to the Sabine river on the W., and the Mermen-teau on the S. E.; area 5,500 sq. m. The soil in the vicinity of the streams is fertile, and the surface, which is level, is principally occupied by savannas, or grassy plains, affording pasture to large numbers of cattle. The productions in 1855 were 150 bales of cotton, 116,280 bushels of Indian corn, 260 barrels of molasses, and 126 hogheads of sugar. Pop. (1855), 3,545, of whom 898 were slaves.

**CALCASIEU LAKE**, situated in the above parish, about 5 miles from the gulf of Mexico, is little more than an expansion of the river of the same name. Length, 18 miles; greatest breadth, 5 or 6 miles.

**CALCHAS**, the wisest soothsayer among the Greeks at Troy, explained the cause of the pestilence which desolated the land, advised the stratagem of the wooden horse, foretold the length of the Trojan war, and died, as predicted by an oracle, on meeting the soothsayer Mopsus, whose prophetic power was superior to his own.

**CALCINATION** (Lat. *calx*, lime), originally, the operation of converting limestone into quicklime by heat. The word was afterward used by the old chemists to designate any similar process by which bodies are rendered brittle and easy of pulverization by the action of heat. The term is now applied to several different processes: one is the separation of some volatile substance from a mineral or organic body by heat, without the action of air; another is in rendering it more fragile by subjecting it to sudden changes of temperature; and another, in increasing its tenacity and rendering it less sensible to the action of atmospheric and chemical agencies. The volatile matters of wood are expelled by calcination for the production of charcoal, or the same process may be employed for the collection also of the volatile ingredients, as the gas for the purposes of illumination, or the liquid products, as pyroligneous acid, naphtha, &c. Bituminous coal is calcined for the preparation of coke or of gas. As applied to wood and coal, the process is also called carbonization. Various ores of iron, of zinc, and of copper, as the carbonates, hydrates, and sulphurets, are also

calcined for expelling the volatile carbonic acid, water, and sulphur, and thus preparing the ores for reduction. Quartz and other hard stones, intended to be reduced to powder for use in glass-making or pottery, are rendered brittle by bringing them to a white heat and then suddenly quenching with cold water. Calcination is also applied to the process of baking by which bricks, earthenware, &c., acquire hardness and cohesion.

**CALCIUM**, the metallic base of lime. It was discovered by Sir H. Davy in 1808, but is very rarely prepared, and in quantities too small for its properties to be accurately investigated. It may be obtained by passing the vapor of potassium at a red heat over quicklime which is contained in an iron tube filled with hydrogen. It may also be prepared by subjecting lime in contact with mercury to the action of the galvanic battery, by which an amalgam of mercury and calcium is obtained. The mercury may then be distilled off from the calcium. It is a white metal resembling silver, much heavier than water, and requires a high temperature for its fusion. Its chemical equivalent is 20.5; its symbol, Ca. Heated beyond its fusing point, it burns with a white light, combining with 8 parts of oxygen to 20 of calcium, and forming the protoxide of lime. Its most important salts will be treated of under their familiar names.

**CALCULATING MACHINES**. Plato, in the 5th century B. C., invented a sliding square to solve the problem of 2 mean proportionals, and Nicomedes, 8 centuries afterward, invented his celebrated conchoid curve for solving the same problem and trisecting an angle. Some mechanical devices for assisting in arithmetical computation were also in use at a very early age; but these were exceedingly limited in their operations, and therefore of little practical use. The same may be said of the more ingenious contrivances devised in the beginning of the 17th century, Gunter's scale and Napier's bones. John Napier, who was probably the first man to suggest the modern notation of decimal fractions, and whose invention of logarithms was well called *canon mirificus*, devised 2 modes of mechanical computation, one by means of square rods engraved with the Arabic figures, the other by means of circular plates. Napier's wonderful discovery of logarithms was made by Edmund Gunter the basis of a very simple machine, consisting merely of a straight line graduated to logarithms, but marked with the corresponding numbers. Addition and subtraction can be performed upon this line by means of a pair of dividers, and the corresponding number by the side of the line will be products, quotients, and factors. But Pascal, in 1642, at the age of 19, invented the first arithmetical machine properly so called. It is said to have cost him such mental efforts as to have seriously affected his health, and even to have shortened his days. This machine was, about 80 years afterward, improved by L'Épine and Boitissendean, but it never came into practical

use. It consisted essentially of short barrels, upon whose circumference the 10 figures were inscribed, covered by a box, 1 figure alone of each barrel being visible through a row of little windows on the upper surface of the box. These barrels were so connected that 10 revolutions in one produced 1 revolution in the next, the revolutions of the 1st barrel being performed by hand to correspond with the numbers to be added. Subtraction was performed by the device recently reinvented in this country ("Montreal Proceedings of the American Association for the Advancement of Science") of having each figure on the wheels accompanied by a smaller figure, such that the sum of the 2 was equal to 9. Whatever number was added to the large figures was, of course, subtracted from the smaller. In 1678 Leibnitz published a description of a machine (*Miscellanea*, tom. i., Berolin) which was much superior to that of Pascal, but complicated in construction and too expensive for the work which it was capable of performing, which was only that of arithmetical addition, subtraction, multiplication, and division. But the glory of Pascal and Leibnitz, as inventors of calculating machinery, has been entirely eclipsed by Charles Babbage and by Messrs. G. and E. Schentz. The British government began in 1821 to build a machine under Mr. Babbage's direction. Early in 1833 a small portion of the machine was put together, and was found to perform its work with the utmost precision. In 1834 Mr. Babbage commenced the design of a far more powerful engine, but nothing has been done toward its construction. These machines of Babbage are enormously expensive, \$80,000 having been spent in the partial construction of the 1st. They are designed for the calculation of tables or series of numbers, such as tables of logarithms, of sines, &c., and are based upon the fact that if we make a new table, consisting of the differences between the successive numbers of the 1st table; then a 2d table, consisting of the differences of the successive numbers of the 1st table; then a 3d table in like manner from the 2d table; then a 4th table in like manner from the 3d; and so on, we shall at length generally obtain a table in which the numbers are all alike. If we had then given to us the 1st number in each of these tables, we might, beginning with the table in which all the numbers were alike, get back to the original table, by a simple process of addition. Thus, by this principle of differences, the computation of all tables is, in general, reduced to a process of addition. The machine prepares a stereotype plate of the table as fast as calculated, so that no errors of the press can occur in publishing the result of its labors. Many incidental benefits arose from the invention, and among them the most curious and valuable was the contrivance of a scheme of mechanical notation by which the connection of all parts of a machine, and the precise action of each part, at each instant of time, may be rendered visible on a diagram, thus enabling the contriver of machinery to devise modes of

economizing space and time by a proper arrangement of the parts of his invention. This mechanical notation of Babbage ("Philosophical Transactions," 1836) is for an inventor of machinery what the notation of algebra is to the student of geometry. The machine purchased for the Dudley observatory by Mr. Rathbon of Albany, at the suggestion of Dr. B. A. Gould, was invented by G. and E. Schentz of Stockholm, and finished in 1853. The Swedish government paid \$20,000 as a gratuity toward its construction. The inventors sought to attain the same ends that Mr. Babbage had attained, but with simpler means. Their engine proceeds by the method of differences, calculating to the 15th place of decimals, and stamping the 8 left hand places in lead, so as to make a stereotype mould from which plates can be taken by either a stereotype or electrotype process, ready for the printing press. It can express numbers either decimally or sexagesimally, and prints by the side of the table the corresponding series of numbers or arguments for which the table is calculated. It has already been employed at Albany in calculating a table of the true anomaly of Mars for each  $\frac{1}{15}$  of a day. Mr. Babbage has seen this machine and given it the most cordial praise. In size it is about equal to a boudoir piano.—("Edinburgh Review," July, 1834; Babbage's "Ninth Bridgewater Treatise;" *Encyclopédie méthodique* (Art. *Arithmétique, et Équation*); "Napier's Life," by Mark Napier.)

CALCULI, stone-like concretions which form in different parts of the body, often about some undissolved particle in the fluid, which holds the matter of the concretion in solution, and again as a deposit upon some hard surface, as the tartar which collects upon the teeth. In the intestines the concretionary deposits are sometimes mechanical agglutinations of dry fibrous particles, as the fine down of the cat gathered about a piece of bone or stone of some fruit, and intermixed with layers of phosphate of lime. The fluids of the body may deposit concretions in most of the vessels, organs, and tissues. They are left by the blood in the arteries and valves about the heart; by the saliva in the mouth, in the substance of the cheek as well as upon the teeth; by the bile in the gall-bladder; they are found in the tissues of the lungs and in the bronchial glands, and in gouty persons under the skin, about the joints of the fingers and toes, &c. But their most common occurrence is in the kidney, bladder, and urinary passages, left by decomposition of the complex fluid of these organs. Urinary calculi are variously composed, and may be classed as those which are soluble in caustic potash or soda, and those which are insoluble. One of the most common of the former class is the uric acid calculus. This ingredient in urine, when secreted in undue proportion, forms minute red crystals and red sand, which are passed in a solid state. If retained, they increase in size and produce the disease called the stone. The acid, if greatly in excess, is deposited in successive layers,

forming yellowish-colored stones of such size that they can be removed only by the operation either of lithotomy, which is making an incision into the bladder and removing the stone by forceps, or of lithotripsy, which is the introduction of an instrument into the urethra, by which the stone is broken, so that it may be removed by voiding it in fragments. If the uric acid is not in excess, the concretion once produced is liable to be covered with an incrustation of an ammonia-phosphate of magnesia or of a phosphate of lime, and thus increase in size. These phosphates when deposited alone, as is sometimes the case, are included among the insoluble calculi, of which other varieties are produced in the forms of crystals of oxalate of lime, called, from their resemblance to the mulberry, the mulberry calculus, of a brown color and octahedral form, or shaped like a dumb-bell, which are sometimes nuclei for the uric acid calculus; and again as carbonate of lime, which are of rare occurrence. Other calculi, which belong to the soluble class, are formed with uric acid in combination with ammonia; others of cystic oxide or cystine, and of xanthic oxide or xanthine. These are distinguished from each other by their various shades of color, different degrees of hardness, and their peculiar reaction with different chemical agents, but more readily than all by the peculiar shapes they assume, which are strongly marked, and unlike those of any other substances. Concretions of uric acid are not uncommon with children, and recur in the same persons in advanced age. Those are most liable to them who suffer from dyspeptic and gouty tendencies, as well as from a scorbutic habit, or tendency to cutaneous diseases. A premonition of their appearance is an habitual turbidity of the urine. When this is observed, serious trouble may in most cases be obviated by particular attention to the diet, and by the use of proper medicines; but if the concretions are allowed to increase till they are too large to be passed, there is then no other recourse to be looked to but an operation; for, once formed, they are never afterward absorbed, nor is any solvent for them discovered, upon which dependence can be placed.—Calculi deposited by the bile in the gall bladder, the liver, and its ducts, are known as biliary concretions and as gall-stones. They are usually of a round or oval form, and of various colors, as white, yellow, brown, and dark green. Sometimes they are soft, and sometimes brittle and easily pulverized to an unctuous powder; their size has, in some cases, reached that of a walnut. In man they generally consist of cholesterin, more or less intermixed in the mucous and coloring matter of the bile; but some have been found consisting of carbonate of lime 72.7 per cent., phosphate of lime 18.51, and mucous 10.81. In animals their composition is very variable; some consisting of the same ingredients as are found in those of men, and some, as has been observed in a calculus taken from an ox, con-

taining little else than margarine and margaric acid. Domesticated animals are very subject to this disease in some of its forms. Almost every ox that is slaughtered has several calculi in the gall bladder. Horses are destroyed by them in the intestines and in the brain; and in the stomachs of ruminating animals they are found in the form of balls of hair, earthy matter, and food cemented around some hard central nucleus.

**CALCULUS**, in mathematics, a mode of calculating. In this broad signification we may speak of common arithmetic and algebra as forms of a calculus. Thus also trigonometry is called the calculus of sines, and the doctrine of chances is spoken of as the calculus of probabilities. The branches of mathematics to which the term is more especially applied are the differential calculus, integral calculus, calculus of variations, to which we may add the calculus of imaginaries, that of residuals, and that of quaternions.—The **IMAGINARY CALCULUS** investigates the nature of quantities which are required to fulfil apparently impossible conditions. It has been discovered by means of this calculus that every absurdity in geometry can be reduced to an attempt to measure a straight line in a direction different from that of its length; and that every algebraic absurdity can be represented by one symbol, always capable of this one geometrical interpretation. This extensively useful calculus has been chiefly developed by M. Cauchy.—The **RESIDUAL CALCULUS** investigates cases of apparent impossibility, arising from the attempt to measure a quantity which has become immeasurably great. Imaginaries and residuals are chiefly employed as subsidiary to the operations of the higher species of calculus.—The **DIFFERENTIAL CALCULUS**, invented by Leibnitz, is identical in its nature with the fluxionary calculus of Newton, differing only in the form of its thoughts and language. It investigates cases of apparent impossibility arising from the attempt to measure quantities immeasurably small, and evades the difficulty by measuring the ratio which such quantities bear to each other. Its use arises from its capability of measuring the rate of change in variable quantities. The problems of this calculus are always of this form, "to find how the change in some variable quantities alters at each instant the value of a quantity dependent upon them." When the changes are gradual and the investigation covers each point of the way, the changes are called differentials. If the change is by distinct steps, the changes are called differences, and the forms of calculation are somewhat different.—The **INTEGRAL CALCULUS** is the reverse of the differential, and seeks to find from a known ratio between the changes of two quantities (mutually dependent on each other) what the unknown relation or law of dependence between the quantities themselves must be; or, in the language of the calculus, the integral of a given function (*i. e.* law of dependence) is a required

new function of which the given function is the differential.—The *CALCULUS OF VARIATIONS* investigates the changes produced by gradually altering the laws of dependence which bind the variable quantities together. This invention of Lagrange crowns the calculus of functions, which by means of these five branches is capable under a master's hand of tracing out very complicated and intricate chains of inter-dependence in every part of the domain of quantity. And yet there is not one of these calculi that can answer all the questions which the physical sciences ask of it. More powerful engines of analysis may yet be invented by future mathematicians.—The *CALCULUS OF QUATERNIONS*, published by Sir W. R. Hamilton in 1853, promises to do something toward supplying this defect. By combining in one notation the direction as well as the length of line, he is enabled to express in a single symbolical sentence an amount of geometrical truth, which in ordinary analytical geometry would require at least four sentences. No other writer has yet mastered this powerful instrument sufficiently to use it with ease; but the verdict of mathematicians is unanimous in praise of its ingenuity, and probable future utility.—The difference between the powers of the principal calculi may be familiarly illustrated by the cycloid, a curve described by a nail head in the tire of a wheel rolling on a straight level road. The differential calculus would investigate the direction in which the nail head moves at each instant of its motion, and show the proportion between its rise, its fall, its horizontal motion, its motion through space, the curvature of its real path, and the revolution of the wheel at each instant. The integral calculus would, from these elements, discover how far the nail head travelled in one revolution of the wheel, how much space is enclosed between its path and the ground, &c., &c. The calculus of variations would consider the change made by the wheel rolling over a hill; or would show how the cycloid differs in its properties from similar curves.

**CALCUTTA** (*Kali Ghatta*, the ghaut or landing-place of Kali, the goddess of time), a city of Hindostan, capital of the presidency and province of Bengal, and the metropolis of British India, situated on the left bank of the Hoogly, 100 miles from the sea, lat.  $22^{\circ} 35' 5''$  N., long.  $88^{\circ} 19' 2''$  E. Its foundation is due to Mr. Job Charnock, an agent of the East India company, who removed the company's factories from the town of Hoogly to this place in 1686. This establishment was broken up a few months after, but was restored in 1690. In 1700, 8 small villages near the factories, one of which bore the name of Calcutta, were assigned to the British by way of return for a present made by them to Azim, a son of Aurungzebe. They were immediately fortified, and in compliment to the reigning king of England, called Fort William—a name which is still retained in parliamentary documents. One of these villages occupied the site of the present European quar-

ter, another stood where the native residences are now erected, and the 8d has given place to a beautiful plain or maidan on the S. side of the city, in the midst of which stands the new citadel of Fort William. Under the protection of the old fortress, now converted into a custom-house and warehouse, a town gradually arose, which in 1707 was made the seat of a presidency. In 1756 it was attacked by Surajah Dowlah, nawaub of Bengal. The garrison, composed of 170 English troops, 1,500 natives, 94 of mixed races, and a militia raised among the inhabitants of 250 men, in all 2,014 soldiers, were ill prepared for such an event; the natives soon made their escape; the governor and commandant, with the greater part of the inhabitants, followed their example; and when the enemy forced their way into the town (June 20), only 146 men fell into their hands. The sufferings of this little band, in the dungeon known as the "Black Hole," have been described in a previous article (see *BLACK HOLE*). Eight months afterward, Clive and Watson recaptured the town; peace was restored, valuable concessions were obtained from the native rulers, and Calcutta resumed its career of prosperity. In 1758 Meer Jaffier, the successor of Surajah Dowlah, remitted the rent which the East India company had previously paid for the tenure of the city.—On ascending the Hoogly, the scenery, which for many miles from the sea is dreary and uninviting, becomes more picturesque as one approaches Calcutta. On the left are the botanical gardens, stocked with many varieties of indigenous and exotic plants, and the Bishop's college, a handsome Gothic edifice erected under the auspices of the society for the propagation of the gospel in foreign parts; on the right is the beautiful suburb of Garden Reach, with its country seats surrounded by elegant gardens. North of this are the government dockyards; beyond them is the arsenal, and still further up the stream, in the esplanade which forms the southern limit of the city, rise the ramparts of Fort William, reputed the strongest in India. This fort, begun by Clive in 1757 after the battle of Plassey, requires for defence 600 pieces of cannon and a garrison of 9,000 men. From here the city extends about  $4\frac{1}{2}$  miles along the river, and has an average width of  $1\frac{1}{2}$  mile, and an area of 8 miles. On the land side it is encompassed by a spacious way called the circular road, marking the boundary of the city and of the administration of English law. Its water front is bordered by a quay called the strand, 40 feet above low-water mark, and 2 miles long, with ghauts, or landings, at intervals. The appearance of Calcutta from the river is magnificent, and seems to justify the appellation of "City of Palaces," so often bestowed upon it. But a closer inspection shows that although the European buildings, both public and private, are nearly all splendid and extensive, the natives, who occupy a distinct quarter of the town, are surrounded by poverty and filth. Their houses

are built of mud, or bamboo and mats; the streets are narrow and unpaved, and until a few years ago were often filled with stagnant pools of water. This section, which forms the northern part of the city, is called the Black Town. The European houses are built of brick covered with stucco, are generally detached from one another, and have spacious verandahs. Most of them are situated E. of the fort, in the Chowringhee quarter, where the streets are wide and handsome. The principal public buildings are the government house, surmounted by a large dome, and fronting on the esplanade; the custom-house, town-hall, treasury, mint, cathedral of St. Paul, a splendid Gothic structure commenced in 1839, 4 Roman Catholic churches, 8 Anglican churches, 7 churches and chapels of other Protestant denominations, a Greek and an Armenian church, a synagogue, 74 mosques, 167 Hindoo temples, and 1 Chinese temple. There are numerous educational establishments, including the university, founded in place of the former Fort William college, the college Panchala and the Bengal school, the Hindoo college, the Madrassa or Mohammedan college, the Sanscrit college, the Martinière, founded under the will of Gen. Claude Martin to afford instruction to poor children of both sexes; St. Xavier's college, directed by the Jesuits, and various missionary schools and academies for both sexes. There are 5 hospitals, a lunatic asylum, an asylum for lepers, a sailors' home, a fund for the indigent blind, 2 orphan asylums, dispensaries, a savings bank, 2 other banks, and several commercial associations. Among many scientific associations, the most famous is the native medical college. The city is supplied with water from large tanks which obtain their stores from periodical rains. There are no less than 1,043 of these, 15 of which are public. The shops or bazaars are furnished with a plainness which must strike a stranger forcibly, but every kind of goods of every quality can be purchased as readily as in England. The principal suburbs, after Garden Reach, are Alipore, Ballygunge, Entally, Sealdah, and Simla, the last 3 being occupied mainly by natives. The climate, formerly considered exceedingly dangerous to foreigners, has been much ameliorated by clearing away the surrounding jungle, draining, &c. The temperature during the bracing cold season, from the 1st of November to the end of February, ranges from 70° to 75°. From this time until June the heat increases, reaching 100° and 110° in the open air. It is followed by the rainy season, which lasts till October.—The population of Calcutta according to the census of 1850, the last taken, was as follows:

Europeans.....	6,336
Europeans (progeny of white fathers and native mothers).....	4,615
Americans.....	892
Chinese.....	847
Armenians.....	15,842
Hindoes.....	374,885
Mohammedans.....	110,918
Total in the city.....	418,189

Including the suburbs, the population is about 800,000. The British merchants form the most respectable and wealthiest class. The Armenians are largely engaged in commerce with various parts of the East, and the retail trade is almost monopolized by the natives. The principal factories in the city and neighborhood are a government foundery, a sugar manufactory, several corn, flour, and oil mills, a boiler manufactory, and the Gloucester cotton mills. The exports are opium, indigo, sugar, saltpetre, rice, cotton, hides, lac, &c.; the imports are metals, piece goods, twist and yarn, salt, betelnut, glass ware, wines, woollens, books, &c. The commerce of all the interior of Bengal, and almost of the whole of India, centres here. The imports of Calcutta in 1853, covered a value of \$42,000,000, and the exports \$56,000,000. The entrances and clearances amounted in 1856, to

1,201 British vessels, tonnage, 790,633
794 foreign " " 444,843

Total	1,995 vessels,	1,234,975 tons.
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About 500 vessels are annually engaged in the coasting trade. The opium sales of the East India company at Calcutta in 1856, were to an extent of \$19,000,000. The trade is carried on chiefly by the Hoogly, which communicates with the Ganges, and with the bay of Bengal. It is here about 1 mile wide, and is navigable by vessels of 1,400 tons. A railway from Howra, opposite Calcutta, was completed as far as Burdwan, in the early part of 1857, and when entirely finished will establish a connection with the upper regions of the Ganges. Its length will be 1,350 miles. Electric telegraphs between the principal cities of India have been in operation since 1855. Continuous communication is kept up with Great Britain by fine vessels sailing around the Cape of Good Hope, and by the peninsular and oriental and the eastern steam navigation companies, which carry mails and passengers by what is called the "overland route," viz., through the Mediterranean to Alexandria, thence by land to Suez, and thence by steamer to Calcutta. Calcutta is the seat of the governor-general of India, of the lieutenant-governor of the presidency of Bengal, of the important courts of law and of an Anglican bishop. The city is also the focus of the missionary enterprises in East India, and missionaries of all denominations, comprising also within the last few years those of the Unitarians, are to be found there. Several newspapers and magazines are issued in Calcutta; of the former must be mentioned the "Hurkaru," the "Englishman," the "Calcutta Gazette," the "Friend of India," the "Calcutta Asiatic Observer," the "Bengal Observer," and among the latter the "Calcutta Review." The journals here enumerated are written in English, but there are several published in Persian and Armenian, and in the different native languages.

CALDANI, LEOPOLDO MARCO ANTONIO, an Italian anatomist, born in Bologna, Nov. 21,

1725, died in Padua, Dec. 30, 1818. He was professor of anatomy in the university of Bologna, where, after a great number of experiments, he published his work on the "Insensibility of Tendons." But impatient of the contradictions which his views received, he left Bologna for Padua, and succeeded Morgagni there. At an advanced age, and with weak eyes, he published, with some assistance, a series of accurate anatomical plates.

CALDARA, ANTONIO, a composer, born at Venice in 1678, died there in 1768. At the age of 18 he wrote an opera, which was successful, and for many years thereafter devoted himself exclusively to that species of composition. He was for a while instructor in music to the emperor Charles VI. at Vienna. He abandoned the stage on the failure of his opera of "Themistocles," and during the remainder of his life wrote sacred music, which is generally preferred to his operas.—POLIDORO, a Milanese painter, also called Caravaggio, after the name of the place where he was born in 1495, died in 1543. When a poor boy he came to seek his fortune at Rome; he was employed in carrying mortar for the artists who were engaged in fresco painting in the Vatican. The artists, who happened to be all pupils of Raphael, were struck with his talents, and admitting him to their studios, he made such rapid progress that Raphael selected him to paint the friezes to his works in the Vatican.

CALDAS, FRANCISCO JOSÉ DE, a naturalist of New Granada, born at Popayan in 1770, executed by order of Morillo, 1816, on account of his liberal political opinions. By his own unaided efforts he mastered the rudiments of astronomy, botany, and medicine, and constructed a barometer and sextant, although he had not even books to guide him in his studies. He accompanied for some time the Spanish explorer, J. O. Mutis. Subsequently he explored the Andes and the Magdalen river, and in 1804 measured the height of Chimborazo and Tunguragua. After having been nominated director of the observatory at Santa Fé de Bogota, he began to edit in 1807 the *Semanario de la Nueva Granada*, which was unfortunately interrupted by his untimely death.

CALDAS PEREIRA DE SOUZA, ANTONIO, a Brazilian poet, born in Rio de Janeiro in 1762, died in 1814. His writings, which are marked by a high moral tone, especially an ode on "Man in the State of Barbarism," were published in Paris in 1821, under the title of *Poesias sagradas e profanas*, with a commentary by Gen. Stockler. At Coimbra, where the poet had studied, a new edition of his poetical works, exclusive of his translations, was brought out in 1836. While at the university of Coimbra, he gave umbrage to the inquisition; and on being consigned to a convent, he devoted himself to the clerical profession.

CALDER, a river of England, in Yorkshire, West Riding. It rises near Burnley, on the E. borders of Lancashire, and thence flows E. until

reaching Wakefield, where it makes a bend to the N., and joins the Aire near Castleford, after a course of 40 miles, for 80 of which it is navigable. It is important as a part of the transportation route across the kingdom from Liverpool to Hull, and is connected by canals with Todmorden, Rochdale, Huddersfield, Goolle, Halifax, and Barnsley.—Another stream in Lancashire, and 2 in Scotland, bear the same name.

CALDERINO, DOMIZIO, an Italian scholar, born at Torri in 1447, died in 1478. At the age of 24 he became professor of belles-lettres and secretary of Sixtus IV. at Rome. With Valla and Politian he edited and published the earliest editions of the Greek classics.

CALDERON, SERRAÍN, a Spanish poet, born at Malaga in 1801, studied law at Granada, was professor of poetry and rhetoric in 1822, and then practised law; published in 1833 his *Poesias del Solitario*, and in 1840 two volumes of poetry; to the *Cartas Españolas* in Madrid he contributed Andalusian sketches; wrote a work which the interests of Spain particularly required on administrative principles, at the instance of the government; in 1834 he became auditor-general of the army of the north, and in 1836 civil governor of Logroño; in 1838, withdrew from politics. In 1838 he published *Cristianos y Moriscos*, a novel. He is a good Arabian scholar, and thoroughly familiar with Moorish literature. He has made a collection of *Cancioneros y Romanceros*, which he proposes to publish.

CALDERON DE LA BARCA, FRANCES ESKINE, authoress of "Life in Mexico," born at the beginning of this century in Scotland. Her father, Mr. Inglis, was a grandson of Col. Gardiner, who fell at Preston-Pans. She resided in her youth for several years in Normandy, and then emigrated with her mother to the United States, where they established a school at Boston, in which the daughter officiated as teacher for 6 years. In 1838 she married the Spanish minister at Washington, Don Calderon de la Barca, and afterward accompanied her husband to Mexico. In 1843 she published her work on Mexico, which gained for her considerable literary reputation.

CALDERON DE LA BARCA, PEDRO, a Spanish dramatist, born in Madrid, Jan. 17, 1600, died May 25, 1681. His father was secretary of the treasury under Philip II. and Philip III. He received his first education from the Jesuits, and subsequently studied theology, philosophy, and civil and canon law at Salamanca. While in the university, at the age of 14, he wrote his first play for the stage, *El Carro de Fuego*. In 1625 he enrolled himself as a common soldier in the army, and took an honorable part in the military operations at Milan, and in the Netherlands. In 1636, Calderon was for mally attached to the court, as the successor of Lope de Vega, for the purpose of writing play for the royal theatres. As a member of the military order of Santiago he was called to serve in quelling the Catalonian rebellion in 1640. I

great haste he finished a drama which he had just begun (*Ceritamen de Amor y Zelos*), and then joined the army. In 1649, when the new queen, Anna Maria of Austria, made her entrance into Madrid, Calderon presided over the festal arrangements. As his reputation increased, his literary activity increased also. He wrote secular plays, *autos*, or religious plays, odes, songs, and ballads for the academies of which he was a member, and for the popular poetical festivals. In 1651 he entered a religious order; in 1653 he became chaplain to the royal cemetery at Toledo; in 1663 the king, in order to secure his presence at Madrid more regularly, appointed him chaplain of the palace. In the same year he became a priest of the congregation of San Pedro, and soon rose to be its head. Without interfering in the least with his labors for the theatre, these ecclesiastical connections brought him orders for religious plays from Seville, Granada, Toledo, and other influential cities, in addition to the plays which he regularly furnished to the city of Madrid for the great annual festival of Corpus Christi. Like Shakespeare, Calderon took little interest in the publication of his plays, with the exception of some of his religious pieces, which he revised before they went to press. Beside 108 comedias, he wrote 78 religious plays, or sacramental autos, and 15 full-length religious plays. The performance of these took place in the afternoon during religious festivals before the people and the court, and concluded with music and dancing. These entertainments were organized by the church, and took place daily for a month, the regular theatres being shut, and the whole population being in the public streets to witness the performances, and also to admire the fantastic figures of giants and other curious exhibitions then to be seen. Calderon's autos turn upon scriptural and Spanish history. Satan takes a prominent part in the plays, and Quevedo says that this "personage comes on the stage dressed finely, and talks as if the theatre were altogether his own." Passages of fine lyric poetry abound. One of the most important of the religious plays, by the comprehensiveness of its allegories and the superior merit of its poetry, is the "Divine Orpheus." Of his full-length religious plays, the "Purgatory of St. Patrick," beside its religious connection with the patron saint of Ireland, has a love-plot, which savors of any thing but sanctity. His "Devotion to the Cross" is celebrated for its devotional passages, and has been translated into German by A. W. von Schlegel. The "Wonder-working Magician" founded on the story of St. Cyprian, is one of the most picturesque and interesting of his religious plays, which include also one on the conquest and conversion of the Indians in Peru, *Aurora in Copacabana*. His secular plays are intriguing, like "Nothing like Silence;" heroic, like "A Friend Loving and Loyal;" while a few are passionately tragical, like "Love survives Life," and the "Physician of his own Honor." The most curi-

ous historical and geographical solecisms repeatedly occur in the plays. In the *Virgen del Sagrario*, a bishop of the 8th century gives, upon the authority of Herodotus, a description of America, which was discovered after the good man had mouldered in his grave for 700 years. In his *Afectos de Odio y Amor*, the Austrian river Danube is transferred half way between Russia and Sweden. Calderon relished this confusion more than any one in his audience, and in his *Los Dos Amantes del Cielo*, a pagan clown of ancient Rome is beginning to prate about friars, as if friars had existed in heathendom, when Calderon makes him correct himself; and with indescribable drollery in his manner, the clown adds:

—ma no es bueno—

Porque aun no sy en Roma frayles.

—a friar, but that's not right,—there are no friars  
As yet in Rome.

Nor is he very particular about preserving the national individuality of his characters. His Zenobia, Jupangui, Judas Maccabæus, &c., might as well have been brought up on the shores of the Ebro, as on those of the Nile or the Peruvian lakes. Like Shakespeare, he sacrifices all conventional rules, and concentrates his whole genius upon the production of the utmost effect upon the audience, and in this he succeeds. His drama, "No Monster like Jealousy," exhibits, next to Shakespeare's Othello, perhaps more powerfully than any other drama, the passion of jealousy upon the stage. The "Physician of his own Honor," is one of his most popular comedies. The "Firm-hearted Prince," and "Life is a Dream" (included in Schlegel's translations), are great favorites on the German stage. The great Corneille took his *Heraclius* from Calderon's drama of the same name; and his *No hay Burlas con el Amor* suggested to Molière the *Femmes Savantes*; his *Astrologo Fingido*, to Thomas Corneille the *Feint Astrologue*, from which Dryden took "An Evening's Love, or the Mock Astrologer." His "Fairy Lady," "Scarf and Flower," are among the most effective of comedies. The "Last Duel in Spain," "Hate and Love," and other plays, were peculiarly attractive at the time of their representation by the contemporary allusions which they contained, the latter referring to Christina of Sweden. Some of his plays were brought out with great pomp, as "Love the Greatest Enchantment," in a floating theatre, erected on the artificial waters in the gardens of the Buen Retiro. He wrote his last drama, *Hado y Devias*, founded on the fictions of Boiardo and Ariosto, in his 81st year. Among the dramatists of other nations who have poached most in Calderon's dramatic fields, are the younger Corneille, and the Italian Gozzo. Several of his plays have been translated into German, and some of them into other languages. Many of them still maintain their popularity on the Spanish stage. Goethe said of Calderon, that he belonged to those



men who blend genius with the utmost common sense. His character presented a rare union of dignity and suavity, of industry and modesty.

**CALDERWOOD, DAVID**, a Scotch divine and prominent champion of Presbyterianism, born toward the end of the 16th century, died in 1651. He underwent imprisonment and exile on account of his opposition to Episcopacy, having published in Holland, in 1623, a book against that form of Christianity, under the title of *Altare Damascenum*. He left a history of Scotland in MS., of which 6 volumes are preserved in the library of the Glasgow university, and of which a condensed summary appeared in 1678.

**CALDWELL, I.** A north-western county of North Carolina, occupied chiefly by pasture lands, but producing also corn and oats; area, 450 sq. m. A portion of the surface is mountainous, the N. W. part comprising a declivity of the Blue Ridge. The productions in 1850 were 192,470 bushels of Indian corn, 84,406 of oats, and 39,813 lbs. of butter. There were 4 corn and flour mills, 1 linseed oil manufactory, 84 churches, and 680 pupils attending public schools. Value of real estate in 1857, \$693,819. Pop. in 1850, 6,817, of whom 1,208 were slaves. Capital, Lenoir. **II.** A northern parish of Louisiana, intersected by the Washita, which is here navigable by steamboats; area, 528 sq. m. The surface is hilly, and corn and cotton are the chief productions of the soil. In 1855 it yielded 2,957 bales of cotton, and 62,960 bushels of Indian corn. Capital, Columbia. Pop. in 1855, 3,685, of whom 1,779 were slaves. **III.** A central county of Texas, named in honor of John Caldwell, a senator of the Texan republic; area, 540 sq. m. It has an undulating, well-wooded surface, and a good soil, abundantly watered by the San Marcos river, which forms the western boundary, and by several small creeks. In 1857 it contained 4,451 horses, valued at \$176,860, and 15,244 head of cattle, valued at \$89,180. Value of land, \$753,620. The staple productions are wheat, Indian corn, and cotton. Pop. in 1856, 5,469, of whom 1,381 were slaves. Capital, Lockhart. **IV.** A county in the western part of Kentucky, bounded on the S. W. by the Tennessee river, and traversed by the Cumberland; area 700 sq. m. The surface is generally level, and the soil produces tobacco, corn, wheat, and oats. There are pasture lands scattered over the county; iron ore is abundant, and a large bed of coal has been opened in the northern part. Organized in 1809, and named in honor of a former lieutenant-governor of the state. The productions in 1850 were 767,725 bushels of Indian corn, 89,557 of oats, 1,435,479 lbs. of tobacco, and 20,649 of wool. There were 40 corn and flour mills, 7 saw mills, 10 distilleries, 3 large iron works, 2 newspaper offices, 80 churches, and 670 pupils attending public schools. Value of land in 1855, \$943,684. Pop. in 1850, 13,048, of whom 3,107 were

slaves. Capital, Princeton. **V.** A north-western county of Missouri, intersected by Shoal creek, and having a flat surface and a rich soil; area, 435 sq. m. It produces corn, wheat, oats, cattle, and swine, and in 1850 yielded 12,784 bushels of wheat, 16,185 of Indian corn, 45,740 of oats, and 13,691 lbs. of wool. There were 2 saw mills, and 115 pupils attending public schools. Named in honor of Dr. Caldwell, of Transylvania university, Kentucky. Pop. in 1856, 3,626, of whom 197 were slaves. Capital, Kingston.

**CALDWELL**, a post village in Warren co., N. Y. It stands in the midst of a beautiful and picturesque region at the southern end of Lake George, is much visited by tourists, and contains 1 or 2 large and favorite hotels. A steamboat plies between it and the outlet of the lake. It contains the ruins of Fort William Henry, and Fort George, memorable in the French and revolutionary wars. Pop. of the township in 1855, 880.

**CALDWELL, CHARLES**, an eminent American physician, born in Caswell co., N. C., May 14, 1772, died in Louisville, Ky., July 9, 1853. He was the son of an Irish officer who had emigrated to this country, and ultimately settled where the subject of this sketch was born. While his parents remained in that remote district, Charles labored under great educational disadvantages, but after they had removed to the southern part of the state, he made such progress in learning that when a very young man he was qualified to become a teacher, and took charge of a seminary at a place called Snow Creek, near the foot of the Bushy mountains, and subsequently of the Centre institute, both in his native state. While instructing others, however, he did not neglect himself; but, assiduously pursuing his own studies, early acquired that taste for science which he ever afterward displayed. Having hesitated some time between the pulpit and the bar, he at last determined to abandon both, and to choose the profession of medicine in preference to either. An obscure practitioner at Salisbury was his first master in this profession. In 1792 he went to Philadelphia, and joined the medical classes of the university, which were then sustained by the talents and reputation of Shippen, Wistar, and Rush. Here he applied himself earnestly to both study and practice, and during the yellow fever of 1793, particularly distinguished himself by ability, courage, and zeal. At the outbreak of the whiskey insurrection, he was appointed surgeon to a brigade and accompanied it to the neighborhood of Pittsburg, but as soon as it was announced that the insurrection had subsided, the troops retired, and a military banquet was given by the army at which Surgeon Caldwell delivered an address that elicited a flattering compliment from Alexander Hamilton. In 1795 he produced his first literary work, a translation of Blumenbach's "Elements of Physiology," from the Latin. In 1814 he succeeded Nicholas Biddle as editor of the "Port Folio,"

to which he gave new efficiency by his talents and energy. In 1816 he edited Cullen's "Practice of Physic," while at the same time he filled the chair of natural history in the university of Pennsylvania. In 1819 he published his "Life and Campaigns of General Greene," the most important and valuable of all his biographical works, and soon after removed to Kentucky to fill the chair of medicine and clinical practice at the Transylvania university, Lexington. In 1820 he made a tour in Europe in order to purchase books and philosophical apparatus for that institution. In 1827 he broke off his connection with the Transylvania university, to establish in the city of Louisville a medical institute, but in consequence of a misunderstanding with the trustees, he was removed from office in 1849 by the board of managers. He passed his latter days in Louisville, engaged in the composition of his autobiography which appeared after his death, and is a daguerreotype of the idiosyncrasies of the author. His principal literary works beside those already mentioned, are "Memoirs of the Rev. Dr. Horace Holley; and *Bachtior Namah*, or "The Royal Foundling, a Persian tale, translated from the Arabic."

CALDWELL, HOWARD H., a living American poet, born in Newberry, S. C., Sept. 20, 1831. He graduated at South Carolina college in 1851, was admitted to the bar in 1855, and since that time has practised his profession in Columbia. In 1853 he published a volume entitled "Oliatta, and other Poems." The chief poem of the collection is a romance of the American aborigines, and several of the others are translations. He has contributed frequently to the periodicals of the South, and a new volume of poems from his pen was published in 1858.

CALDWELL, REV. JAMES, an American revolutionary patriot, born in April, 1784, at a settlement called Cub creek, in what is now Charlotte co., Va., was killed by a British soldier, Nov. 24, 1781. He graduated at the college of New Jersey in 1759, and became pastor of the then large and important Presbyterian congregation at Elizabethtown. In March, 1768, he was married to Miss Hannah Ogden, of Newark, a lady whose tragic fate has made her name familiar to all readers of American history. During the progress of the differences between the mother country and the colonies, which immediately preceded the war, he warmly espoused the cause of the people, and by his personal influence and eloquence encouraged and increased the spirit of resistance. When hostilities actually commenced, he was appointed chaplain in the Jersey line, and acted in that capacity with those portions of the American army which successively occupied that state; he accompanied the Jersey brigade to the northern lines, and in addition to his other duties performed those of commissary for some time. There was, probably, no other man in New Jersey whose influence with the people was so great, and to whose appeals they responded so readily and

effectively. He was consequently the object of hatred and persecution to the British and tories, and in order to avoid the dangers to which he was continually exposed he removed his family to Connecticut Farms, a small village about 3 miles further in the interior of the country. The enemy were then in possession of New York and Staten Island, whence they made frequent incursions to New Jersey, on which occasions the bell of Caldwell's church was always used to sound the alarm and arouse the country. On Jan. 25, 1780, one of these marauding parties, consisting of 600 regular troops and a large number of tories, surprised the picket guard at Elizabethtown, captured 2 majors, 2 captains, and 43 privates, plundered the inhabitants, and burned the town-house, Caldwell's church, and a private residence. It is but just to say, however, that the torch was applied to the church by a tory, residing in the neighborhood, who, when he saw the building wrapped in flames, expressed his regret that "the black-coated rebel, Caldwell, was not then in his pulpit." The detachment immediately retreated, without loss, to Staten Island, where Gen. Knyphausen was in command. Having received exaggerated accounts of the recent mutiny of the Connecticut line, and of the general discontent which was said to be prevalent in New Jersey, the latter projected an expedition which left the island during the night of June 5, 1780, and landed at Elizabethtown Point before dawn on the following morning. It was composed of about 5,000 regular troops, with 17 pieces of artillery, under the command of Brig.-Gen. Sterling; and it was hoped that such an imposing array would be sufficient to terrify the rebels, encourage the loyalists, and restore the Jerseymen to their allegiance. As the column approached the village of Elizabethtown, it was indistinctly seen in the darkness by a sentinel, who gave a challenge which was unanswered, and he immediately fired at random into the moving mass. The shot, which ultimately proved mortal, took effect in the thigh of Gen. Sterling, who was carried back to Staten island, and Knyphausen himself took command. The march was resumed, but the alarm had been given and the Jersey regiment at Elizabethtown, under Col. Dayton, were ready to oppose their progress. Being too few in number to offer any effectual resistance, they retired in good order, skirmishing occasionally, until they reached Connecticut Farms, where they were met by the Jersey brigade under Gen. Maxwell, and some militia of the country who had hastily assembled, and a sharp action ensued. The invaders being reinforced by a second division which had just arrived from Staten island, and having the advantage of artillery, were enabled to force their way some 3 miles further on the road toward Morristown, where Washington had his camp. Before reaching the village of Springfield they found that intelligence of their movements had been sent to head-quarters; that all necessary ar-

rangements had been made for the defence of the village; and that Washington had moved forward in person, and was strongly posted in the passes of the Short Hills, directly in the rear of Springfield and commanding the approaches to Morristown. Finding it impossible to proceed further, they commenced a retreat, in which they suffered severely from the militia, who took advantage of every tree and fence which could furnish an ambush. Irritated at the unexpected and obstinate resistance made by the Jersey troops and yeomanry, the British began to burn the houses and pillage the property of the villagers at Connecticut Farms. In one of the houses was the family of Mr. Caldwell, whose wife had retired to a back room, with her 2 youngest children—one an infant in her arms—where she was engaged in prayer, when a musket was discharged through the window. Two balls struck her in the breast, and she fell dead upon the floor. The church was already in flames, and the parsonage was about to be set on fire when her corpse was discovered by a young American officer, in the British service, who succeeded in preventing the destruction of the building, and obtained permission from the commanding officer to remove the remains to a place of greater security. The odium which attached to the perpetration of this ruthless murder was so universally expressed, and its effect upon the popular mind was so injurious to the royalists, that they insisted it was the result of a chance shot from the cross firing of the contending parties, while the Americans declared it to be the deliberate act of a British soldier. There are, however, good reasons for believing it to be the deed of an Irishman who had been employed in the service of Mr. Caldwell, and who, for some reason, had conceived a violent enmity against his employer. Upon this occasion he joined the enemy and accompanied them on their retreat. Mr. Caldwell was on duty in Washington's camp, and, after passing a night of anxious uncertainty, he procured a flag on the following morning and went to Connecticut Farms, where his worst fears were at once confirmed.—On June 28, Gen. Knyphausen made a second incursion with about 5,000 troops. On this occasion he passed over the same route to Springfield, where a battle was fought. Though the enemy were defeated in the principal object of the expedition, they succeeded in burning the village. Among the most active in the fight was the chaplain Caldwell. There is a tradition, well authenticated, that in the hottest period of the action the wadding of a portion of the Jersey infantry gave out, which fact being communicated to Caldwell, he rode to the Presbyterian church, and hastily collecting the psalm and hymn books which were in the building, he distributed them to the soldiers with the exhortation, "Now put Watts into them, boys!" The British were finally compelled to retrace their steps, which they did with all possible rapidity, followed and harassed as

before by the Jersey militia.—In 1781 a commissariat of prisoners was established at Elizabethtown, and a small vessel with the privilege of a flag made weekly trips between that place and the British head-quarters at New York. On Nov. 24 Mr. Caldwell went to the Point, either for the purpose of receiving a lady who was expected as a passenger, or to execute a commission for her. Finding that the vessel had arrived, he went on board and soon returned with a small package, which he was carrying toward his chaise when he was hailed by James Morgan, the sentinel on duty, and ordered to deliver the package for examination. He replied that it was the property of a lady for whom it had been placed in his charge; and it appears that he was really ignorant of its contents, among which were the prohibited articles of tea, mustard, and pins. The order was repeated, when Mr. Caldwell turned away and was leaving the sentinel for the purpose, it is said, of returning the package to the vessel, when the soldier shot him dead upon the spot. In compliance with the popular demand the sentinel was delivered to the civil authorities, and was tried for the crime of murder at a court held in the Presbyterian meeting-house at Westfield, the township adjoining Elizabethtown. His defence upon the trial was that he committed the act in obedience to orders, and in the discharge of his duty as a sentinel. The plea was unavailing; he was condemned and hanged, Jan. 29, 1782. The remains of Mr. Caldwell and of his wife were interred in the graveyard of the first Presbyterian church in Elizabethtown, and a costly marble monument was dedicated to their memory by the citizens of that town, on the 64th anniversary of the death of the "soldier parson."

CALDWELL, JOSEPH, D. D., first president of the university of North Carolina, was born at Leamington, New Jersey, April 21, 1773, died at Chapel Hill, N. C., Jan. 27, 1835. He was educated at Princeton college, where, in 1791, he pronounced the salutatory Latin oration. From this period till 1796 he acted as tutor at Princeton, but then an event occurred which laid the foundation of his future distinction and usefulness. The humble tutor was chosen to fill the chair of principal professor at the infant university of North Carolina, and henceforward his destinies were bound up with those of that institution. Under his tutelage the new university grew and flourished, and in 1804, as a proof that his services and devotion were appreciated, he was made first president by the trustees. For nearly 40 years he remained in connection with the university, and his government of it during that long period excited the admiration of his contemporaries, and proved the source of its present prosperity. He it was who chiefly digested and arranged its educational systems, framed its constitution, and laid down rules of discipline for the control of its alumni. In 1824 Dr. Caldwell went to Europe to select books for the library, to

form cabinets, and to procure valuable philosophical apparatus. In 1828 he was attacked by a disease which filled his latter days with suffering, and which, after tormenting him for 7 years, ultimately carried him off. Though Dr. Caldwell's fame mostly arises from his connection with the university of North Carolina, yet his letters under the pseudonym of "Carlton," on railroads and internal improvements, demonstrate that he was not indifferent to the interests of the outside world. His most important literary work is an elementary "Treatise on Geometry," which appeared in 1822. Dr. Caldwell was an able mathematician and a profound theologian, but his favorite maxim was "*facta non verba*," and it is chiefly as a man of action in the capacity of tutelary guardian of the North Carolina university that he is known to us.

CALEDONIA, a mountainous but fertile county in the N. E. part of Vermont; area, 650 sq. m. The Connecticut river forms its S. E. boundary, and several small streams within its limits furnish water power for a number of saw and grist mills. Maple sugar is produced in this county in greater quantities than in almost any other in the United States. Potatoes, oats, and hay are the other staples. The productions in 1850 were 62,551 bushels of wheat, 96,389 of Indian corn, 218,735 of oats, 565,341 of potatoes, and 186,790 pounds of wool. There were 19 corn and flour mills, 100 saw mills, 15 woollen factories, 19 tanneries, 1 iron foundry, 2 newspaper offices, 49 churches, and 7,361 pupils attending public schools. There are some sulphur springs, and abundance of granite and limestone. Organized in 1792. Capital, Danville. Pop. in 1850, 28,595.

CALEDONIA is the name given by the Romans to the northern part of Scotland, beyond the Glota and Bodotria, the modern Clyde and Forth, which formed the boundaries of their province. It is mentioned in Tacitus, who believes its inhabitants, on account of their reddish hair and large limbs, to be a people from Germany. Agricola, the conqueror of Britain (78-85), was the first Roman general who came in contact with them; in the 6th year of his expedition, he penetrated with an army beyond the Bodotria, assisted by a coasting fleet; but the determined resistance of the barbarians, and the repulse of the 9th legion, attacked by night, compelled him to return. In the next year he came again, advanced as far as the Grampian hills, and routed 30,000 Caledonians, under Galgacus, their chief, which bloody victory has found a lively description in Tacitus's life of this hero. In the ensuing night the flying barbarians burned their rude dwellings and disappeared; and Agricola soon returned to the south of the rivers, and fortified their line for the defence of the Roman province. The emperors Hadrian, Antoninus, and Severus, strengthened the natural boundary with walls and ramparts against the frequent incursions of the Caledonian barbarians, afterward known under the name of

Picts and joined by Scots from Ireland. When the Romans, unable to defend Britain, left it to its fate, the inhabitants called the Anglo-Saxons (449) to their aid against their northern neighbors. The power of the Picts was broken (869) by the Scots, who gave their name to the country.

CALEDONIAN CANAL, in Scotland, counties of Inverness and Argyle, connects the North with the Irish sea, extending from Murray frith through Lochs Ness, Oich, and Lochy, in the great glen of Caledonia, to Loch Eil. The total length is 60½ miles, of which the lochs compose 87½. The canal was begun in 1803, and opened for navigation about the close of 1823. The government appropriations to this work between 1803 and 1847 amounted to over £1,200,000.

CALEF, ROBERT, a merchant of Boston, died at Roxbury, April 13, 1719. He lived when the witchcraft delusion and persecution were prevalent in Massachusetts, and was distinguished by his steady opposition to the proceedings of the magistrates and ministers. He wrote a book in answer to Cotton Mather's "Wonders of the Invisible World," which he entitled "More Wonders of the Invisible World," and which was issued from a London press in 1700. His book was denounced from the pulpit and in pamphlets, and was even publicly burned in the yard of Harvard college. Ere long, however, the popular sentiment changed in this respect, and the opinions which Calef had upheld became prevalent.

CALEMBOURG, a French word for a pun, or a witticism, the origin of which is ascribed by the Germans to a Westphalian count of the name of Calemberg, who blundered whenever he attempted to speak French. According to other authorities, the term is derived from a facetious Parisian apothecary whose name was Calembourg.

CALENDAR is a method of numbering and arranging days, weeks, months, and years, or a mechanical contrivance for registering that arrangement. The day is a natural division of time varying slightly in its length, but so slightly that a clock keeping mean or average time seldom differs 15 minutes from the time as given by the sun. Civilized nations usually commence the day at midnight, and count 2 periods of 12 hours each in the day. Astronomers and navigators since the time of Ptolemy commence the day at noon, and number the hours from 1 to 24.—The week is not a natural division of time, although 4 weeks are nearly a lunation, and many periods in the animal economy, such as the incubation of eggs, correspond singularly with weeks. The use of the week in eastern nations from time immemorial is by some ascribed to the effect of divine command, as recorded by Moses, and by others to the number of conspicuous planets. Our common names for the days of the week are Saxon in form, but evidently were borrowed originally from some eastern nation, as the gods to whom

each day is consecrated correspond in character to those to whom the days were consecrated by the Greeks and Latins, when they adopted the week from the East. The Greeks and Romans originally had no weeks.—The Greeks divided the month into 3 equal decades, the Romans into 8 very unequal periods. The length of the month was suggested, as the word shows, by the moon, which completes her changes in about 30 days. But inasmuch as the solar year does not consist of an even number of lunar months, the months have in most nations become fixed periods of 30 or 31 days. The length of the months in most civilized nations has been copied from the Romans. No nation has, however, followed the singular division which the Romans made in the month by means of 8 days. The first day being called the *calends*, and the 13th or 15th the *ides*, the *nones* were the 9th day before the *ides*, and the other days of the month were numbered from the next succeeding *calends*, *nones*, or *ides*. The day, for instance, which we call Feb. 19, they called the 11th before the *calends* of March.—The solar year is a natural period, formerly measured by the interval between 2 successive vernal equinoxes. If the civil year corresponds with the solar, the seasons of the year will always come at the same period. But in early times the Roman pontiffs regulated the length of the civil year so imperfectly, that in the days of Julius Cæsar the spring occurred in what the calendar called summer. Cæsar, with the help of Sosigenes, reformed the calendar in 46 B. C., and introduced our present arrangement of having 8 years of 365 days followed by one of 366, dividing the year into months nearly as at present. The irregularity of alternation in the months of 30 and 31 days was introduced a few years after to gratify the vanity of Augustus, giving his month of August as many days as Julius Cæsar's month of July. The additional day was given in leap year to February, by calling the 5th day before the *calends* of March a second 6th; whence leap year is still called in the almanacs *bissextile* year. This calendar of Julius Cæsar is still used in the Russian empire, and was in use in all Europe until 1582. Its error consists in making the year 365½ days, which is about 11 minutes too much, an error which has now amounted to about 12 days. Pope Gregory XIII. by a brief ordered Oct. 5, 1582, to be called the 15th, and that the years 1700, 1800, and 1900 should not be accounted leap years. This is called the *Gregorian* calendar.—The most intricate matter in the calendar is the ecclesiastical rule governing the movable feasts. The council of Nice ordained in the year 325 that Easter should be celebrated on the 1st Sunday after the full moon that occurs on or next after the day of the vernal equinox. The days of the week are denoted by the 7 leading letters of the alphabet, A being placed against Jan. 1. The dominical letter for the year is the letter which will then come against Sunday. The solar cycle is a period which re-

stores the 1st day of the year to the same day of the week, by means of which we can of course find the dominical letter for any year, and therefore tell what day of the week it was or will be at any given date. The lunar cycle is a period which restores the new moon to the same day of the month. The golden number indicates the place of any given year in the lunar cycle, so that by means of it we can tell on what day of March the full moon falls, and thus find Easter day. The *Gregorian* calendar, civil and ecclesiastical, was soon adopted in the Catholic states. In the Protestant states of Germany it was but partially adopted in 1700, and not wholly until 1774. The change from Julian to *Gregorian* reckoning was made by act of parliament in Great Britain, Sept. 1753, the 8d of the month being called the 14th.—The ancient Egyptians, Chaldeans, Persians, Syrians, Phœnicians, and Carthaginians, each began their year at the autumnal equinox (about Sept. 22). The Jews also began their civil year at that time, but in their ecclesiastical reckoning the year dated from the vernal equinox (about March 22). The beginning of the year among the Greeks was at the winter solstice (about Dec. 22) before the time of Meton, and at the summer solstice (about June 22), after Meton. The Greek astronomers had a solar year peculiar to themselves, to the months of which they gave the 12 signs of the zodiac. The Roman year from the time of Numa began at the winter solstice. It was not probably the original purpose of Cæsar to change this time of the commencement of the year, and his motive for delaying it several days till Jan. 1 was, doubtless, the desire to make the first year of the reformed calendar begin with the day of the new moon. Among the Latin Christian nations there were 7 different dates for the commencement of the year: March 1; Jan. 1; Dec. 25; March 25 (beginning the year more than 9 months sooner than we do, this was called the *Pisan* calculation, and though unknown in Spain, England, and Germany, was followed in several states till 1745); March 25 (beginning the year nearly 8 months later than we do; this was called the *Florentine* calculation, and was much in use from the 10th century till 1745); at Easter; and on Jan. 1. (but one year in advance of us). In France the year began in general at March 1, under the Merovingians; at Dec. 25, under the Carolingians; and at Easter, under the Capetians. By edict of Charles IX., in 1564, the beginning of the year was ordered at Jan. 1. In England, from the 14th century till the change of style in 1752, the legal and ecclesiastical year began at March 25, though it was not uncommon in writing to reckon it from Jan. 1. After the change was adopted in 1752, events which had occurred in Jan., Feb., and before March 25, of the old legal year, would, according to the new arrangement, be reckoned in the next subsequent year. Thus the revolution of 1688 occurred in Feb. of that legal year, or, as we should now say, in Feb.

1689, and it was at one time customary to write the date thus: Feb. 1683.—The year of the French revolutionary calendar, which was instituted in 1792, began with Sept. 22. It consisted of 12 months of 30 days each, with 5 sacred days at the end devoted to festivals, and called the *sansculottides*. The months were divided into 3 decades of 10 days each. Every period of 4 years was termed a *francade*, and was terminated by 6 instead of 5 festival days. The more accurate adjustment was arranged according to the Gregorian regulation for leap year. The Gregorian calendar was restored in France, Jan. 1, 1806.—The ancient northern nations of Europe began their year from the winter solstice. In the era of Constantinople, which was in use in the Byzantine empire, and in Russia till the time of Peter the Great, the civil year began with Sept. 1., and the ecclesiastical sometimes with March 21, and sometimes with April 1. The beginning of the Mohammedan year is not at any fixed time, but retrogrades through the different seasons of the solar year. Among most of the peoples of the East Indies, the year is lunar, and begins with the first quarter of the moon the nearest to the beginning of December.—Among the Peruvians the year began at the winter solstice, and among the Mexicans at the vernal equinox. The year of the former was lunar, and was divided into 4 equal parts, bearing the names of their 4 principal festivals, instituted in honor of their 4 divinities allegorical of the seasons. The Mexicans had a year of 360 days and 5 supplementary days. They divided it into 18 months of 20 days, and had a leap year.

CALENDERING, the process of finishing cotton and linen goods by passing the cloth between smooth cylinders, which are made to revolve in contact. The term is also applied to the subsequent operations of cloth-lapping, or folding the cloth, and packing it, all which are conducted in the same establishment. The business also connected with the shipment of the goods is all considered a part of that of the calender houses. Paper as well as cloth is subjected to the finishing process of calendering, as will be described in the article PAPER. The name calender is applied to the machine comprising the rollers which smooth the woven fabrics. Before passing the cloth between them, it is essential that such as is designed for calico printing should be subjected to the singeing process, in order to remove the loose fibres or down; and it is common to subject most goods to this operation. It consists in drawing the cloth rapidly over a horizontal gas-pipe, along which numerous little apertures extend in a straight line, so that the gas, ignited, gives a long line of flame equal to the width of the cloth. Another pipe, placed over this and exhausted of air, draws in the flame through the goods as they pass between the two pipes, and the loose fibres are burned out without igniting the fabric. The movement is at the rate of about 8 feet in a second. Any sparks that may remain are

extinguished as the cloth immediately passes between 2 rubbers placed in front of the line of flame. A yellow color like that of nankeen is produced by this process, which requires to be removed by bleaching, before printing.—As the goods are received by the calenderer, they are commonly first dampened, sometimes by passing them over the surface of water. The folds and creases are thus partially removed, and the cloth is better prepared for the succeeding operations. The smoothing and polishing by the calender is similar in effect to the operation of the domestic smoothing iron, or, on a larger scale, of the mangle; but, applied to the enormous quantities of cloth turned out by the cotton and linen mills, it must be conducted with most efficient machinery. The objects to be attained are, rendering the surface of the fabric smooth and even by the removal of all wrinkles, the flattening down of all knots and other imperfections, and the spreading of the threads so as to give them a flattened form, and the texture the appearance of closeness and strength. The polish upon cotton goods called glazing, is produced by the friction they receive in this process. Calendering varies with the nature of the fabric and the purposes for which it is designed. Lawns and muslins of light texture are smoothed in light machines not heated, and with moderate pressure, there being no objection to their threads retaining the cylindrical form, and the fabric its open texture. On the other hand, the fabrics, which are to go to the calico-printer to receive the first impression by the block, require a high pressure, and sometimes to be passed twice through the rollers. But those which have already been partially colored, and are to be filled in with other colors, must not receive that stiffness of finish which will prevent the cloth being stretched one way or the other, whenever it may require slight changes of form, to admit of the exact adjustment of the grounding blocks to the outlines of the colors already applied.—The smoothing calender was introduced into Great Britain from Flanders and Holland during the persecution of the Huguenots. It has been improved in Lancashire by substituting rollers made of pasteboard disks for 3 of the 5 commonly employed in the machine, which 3 were previously constructed of wood, and were consequently liable to warp and crack with the heat to which they were exposed. The other 2 are hollow cylinders of cast-iron, constructed of metal 2 inches thick surrounding the internal cavity of 4 inches diameter; this gives them a diameter of 8 inches. The cavity admits of the introduction of a red-hot roller or of steam. The pasteboard cylinders suitable for the iron ones of the dimensions given are 2 of 20 inches diameter, and 1 of 14 inches. They are placed in a strong upright iron frame, the small cylinder in the middle and an iron one above and below it, revolving as a cylindrical smoothing iron between the 2 pasteboard cylinders which take the place

of the domestic ironing board or table with its cover of cloth. The paper rollers are very ingeniously contrived to avoid the defects of the wooden ones, and present a smooth surface to the cloth. Set like a wheel upon its axle, a disk of cast-iron at the end of a strong iron bar is perforated with 6 holes near its circumference for as many iron rods to pass through. Circular plates of thick pasteboard, an inch larger in diameter than the intended roller, are next laid upon this disk; they are furnished with holes for the axle and the iron rods. The pile is continued to a length as much exceeding that intended for the roller as the pasteboard disks will shrink by the compression they will be subjected to. A corresponding iron plate is then set upon the other end of the axle, and the rods being passed through and screwed up, the cylinder thus formed is put in a hot apartment or stove to be thoroughly dried for several days, the screws being occasionally tightened upon the rods as the pasteboard shrinks. The surface of the cylinder thus obtained is excessively hard and close. To turn it down to its proper size is a work of great labor; several men are employed upon it, and the best tools are rapidly dulled. They are necessarily of small size, slowly working down the face of the cylinder, as it revolves at the rate of only 40 or 50 revolutions per minute. When finished, it presents a hardness and polish far superior to that of wood; it also possesses great strength, without the liability of being warped or injured by the great heat to which it is to be exposed. When set in the frame, they are so arranged that they may be forced by levers or screws into very close contact with the iron cylinders. The cloth, fed from a roll placed opposite the machine, is carried over the upper pasteboard cylinder, between this and the iron one, then between this and the next below, and so on till it has been 4 times compressed and ironed. The glazing or polishing of the surface is produced by the middle pasteboard cylinder being made to revolve more slowly than the others, and consequently producing a rubbing effect of the cylinders upon the cloth. By this arrangement the former tedious operation of glazing upon a table is rendered unnecessary. A calender, contrived by Mr. Dollfus, has cylinders of sufficient length to pass through 2 pieces of cloth at once, and it is also provided with a folding machine, which receives the cloth as it comes out of the rollers, and folds it without the attention of the workmen. By running through 2 layers of cloth together, one upon the other, the threads of one make an impression upon the other, giving a wiry appearance to the surface. The embossed appearance is produced by rollers of copper, upon the face of which the design is engraved. The proper folding of the cloth preparatory to its being pressed, must, like the other operations of calendering, be carefully conducted, that the appearance of the finished article shall be perfectly neat and free from creases and blemishes of every kind.

Particular importance is attached to the method of doing this, the object being sometimes to make the articles appear what they are not, and sometimes to make their real character conspicuous. When the folds are completed, usually with muslin goods so as to admit of their being opened in any place, like the leaves of a book, the pieces are placed, with thin boards and glazed pasteboard between each, in a powerful hydraulic press, capable of exerting a pressure of 400 tons. While in the press the parcels are corded and prepared for packing immediately in bales. The measure of the cloth has been taken before the folding, either upon the long measuring table, or by folding the cloth from one side to the other and back upon a graduated hooking frame, provided with 2 needles upon which each fold is suspended. The labels for the cloth put up at the English calendering establishments, are expressly designed for the particular country to which the goods are to be sent. Most of them are of showy pattern in blue and gold, with various devices. Some of the more expensive cost \$5 or \$6 per 100, while the common labels are worth only 25 cts. per 1,000.

CALENDS, the first day of the month in the Latin calendar.

CALENTURE, or INDIAN SUN-STROKE, a violent fever incident to persons in hot climates, especially to such as are natives of more temperate regions. This inflammatory fever is attended with delirium, during which the patient is often tempted to walk into the sea, imagining the extensive surface of the ocean to be an immense plain of pleasant and refreshingly cool green fields.

CALENZIO, or CALENTIUS, ELISEO, a Neapolitan poet of the 15th century, died in 1508, published numerous writings in prose and verse, elegies, epigrams, satires, fables, and epistles, which were issued under the title of *Opuscula*. He also wrote upon penal legislation, and is said to have been the first to propose the restriction of capital punishment to the crime of murder.

CALEPIN, a French name for a collection of notes and extracts, or a commonplace book. It is derived from AMBROSIO CALEPINO, an Italian, who published in 1502 a Latin-Italian lexicon, which had in its time a great reputation and passed through many editions, especially in Switzerland, where it was enormously increased by notes and by the introduction of additional languages. The edition of Basel, 1590-1627, is in 11 languages.

CALF, the young of a cow, or of the bovine genus of quadrupeds. Whatever breed the calf may spring from, its natural food is milk; coming from the mother in a warm state, it is exactly adapted to the existing condition of her offspring. Milk contains materials for making bone, as phosphoric acid, lime, soda, &c.; for muscle, caseine; for fat, butter or oil, and sugar of milk, as well as a large percentage of water. The method pointed out by nature is pursued

by some breeders; the calf is allowed to run with the dam till weaned; but in most instances this is considered unprofitable, particularly where the object is to secure the largest supply of milk and its products for sale. Thousands of calves are annually slaughtered at 2 and 3 days old, when the milk of the cow is considered fit for use; the meat fed to swine or fowls, the skins sold to the tanner. This wholesale slaughter at so early an age might be avoided by very simple means, and a large increase added to the dairyman's revenue, while the market would be supplied with more good veal and beef, and a greater number of cows would be produced. Some dairymen have selected 2 or more cows from their herd for the rearing of calves, the latter being removed from their dams when 2 or 3 days old, and placed in the pen with the foster-mother. Two cows, bearing at different periods, have fattened 7 calves in one season, and finished the year by becoming victims themselves to the butcher. It is necessary that the foster-dam have clean, well ventilated quarters, and the best quality of succulent food; in summer, sweet hay, clover, green corn, or rye grass, cut and carried to her, with an occasional feed of corn or oil meal if she and her family are not in a thriving condition. In winter the food should consist of the sweetest of hay, at least one peck of sliced roots, morning and evening, with meal and a little salt sprinkled over them. When an increase of milk is desired, additional quantities of roots or mash made from meal, or shorts scalded and made thin with water, should be fed. In Scotland, "the cows intended for nursing generally calve early in the season, about the month of January or February, when a strange calf is procured from some of the small tenants in the district who have dairies. This calf is suckled with the other by the same cow, and although the cow at first shows great dislike to the stranger, in a few days she receives it very quietly, care being taken that both are put to suck (one on each side) exactly at the same time, by tying the calves' bands to the stall, or to the band of the cow, so as to keep each calf at its own side. They remain with the cow 15 or 20 minutes, by which time her milk is perfectly drawn away. As the calves advance in age, they eat hay, sliced potato, porridge, and other food they are inclined to take. By May 1, or as soon as grass is ready, they are weaned and turned out from the byre, when 2 fresh calves are immediately put into their stalls, and receive the same treatment, excepting that they are turned out at 12 o'clock, after they have got their suck, to eat grass, and are brought into the byre again at evening, when the cows come in to be sucked. This set is ready to be weaned by August 1, and a single calf is put into the feeding pen, and the calf fattened for the butcher, the season being now too late for rearing. As these are fed off, the cows are let off milk, having each suckled 3 calves. It is necessary to have a very steady

and careful person to attend to the suckling, which has to be done 3 times a day, viz.: early in the morning before the cows are turned out to grass, at mid-day, and in the evening when the cows come into the byre for the night, and get a little cut grass, tares, or other green food. The byre is arranged so that each of the cows has a stall about 4 feet wide, with their heads to the wall; and on the opposite wall the calves are tied up, 2 in a stall, exactly behind the cow, so that there is little trouble in putting them to the cow, and no chance of misplacing them. The fat calves have in some seasons been sold at £5 each, this being the scarcest time of year for veal." In the natural state, the cow yields milk enough to rear the calf, then ceases to give milk until the next calving. Man has bred cows for milking qualities; hence the length of time for giving milk, and the quantity given, are both greater than required for the calf; hence two evils arise: the calf, if left with the cow, is overfed; and her milking qualities are injured. For these reasons the calf should be nursed by a cow kept specially for that purpose, or reared by hand. Robert Oolt, Pittsfield, Mass., says: "Take the calves from the cow, and feed them with 3 quarts of new milk twice a day for 3 months, adding, after they are 3 weeks old, a little rye and corn meal scalded, then wean off upon dry provender and grass, roots, or hay, as the season may be." Or, "Take the calf directly from the cow, put some dry fine salt in its mouth, and feed on flaxseed jelly and hay tea for 1 or 2 months, till the calf is able to eat grass. The jelly is made by boiling 1 pint of flaxseed in a gallon of water; pour boiling water over sweet hay and extract its good qualities; the 2 are then mixed together, about 1 pint of jelly being used to 2 gallons of hay tea per day, with an occasional addition of oil meal." This will do in the absence of milk, but cannot be highly recommended. Feeding on sour milk has been tried, and beaves have been produced at 1 year old of 500 lbs. Calves, when taken from cows, are usually fed with skim milk, being allowed to suck the fingers immersed in the milk until the habit of drinking is established. The milk must be given blood-warm, and may be enriched by boiled potatoes mashed, or thin mush from Indian corn meal. About 16 to 20 pints per day is the usual quantity of milk. Cold milk is apt to purge the calf; if this occur, the use of 1 or 2 spoonfuls of rennet will remove the difficulty. Never overfeed a calf, or it will become pot-bellied, and permanently injured. As soon as frost occurs, pen the calves, and give sweet hay with a few sliced carrots or other roots, with a little salt. To prove profitable, a calf must show daily improvement, and never suffer the least check in growth. In the isle of Jersey no calves feed from the cow. Mr. Moss, of Conn., has invented a pail with a simple gutta percha teat at the bottom. The pail is filled with liquid food, and suspended in the stall above the calf, which feeds from it as from its dam.—DISEASES: *Vermis*, a tablespoon-



ful of sulphur 8 mornings in succession; *Diarthaea*, a little chalk, opium, and gentle cordials; *Consipation*, castor oil, with a little ginger. For treatment of diseases, see Youatt and Martin on cattle.

CALHOUN, the name of counties in several of the United States. I. A western county of Florida, bordering on the gulf of Mexico, and washed by the Appalachicola river on the E.; area, 464 sq. m. It has a low surface, and produces cotton, sugar, tobacco, and corn. The productions in 1850 were 187 bales of cotton, 29,495 bushels of Indian corn, 30,252 lbs. of tobacco, and 2,570 of rice. There were 3 grist mills, 2 saw mills, 1 church, and 44 pupils attending public schools. Named in honor of John C. Calhoun. Pop. in 1850, 1,377, of whom 453 were slaves. Capital, St. Joseph. II. A central county of Mississippi, formed within a few years from Chickasaw, Lafayette, and Yallobusha, and drained by Yallobusha and Loosascoona rivers. It is not included in the last census. III. A southern county of Texas, with an area of 484 sq. m., bounded S. W. by Guadalupe river, and bordering on the gulf of Mexico. The bays of Matagorda and Lavaca indent its N. E. coast. The surface is generally level. Cotton, Indian corn, and sweet potatoes are the staple productions. The soil is not fertile, and timber is sparsely distributed over about  $\frac{1}{2}$  of the surface. In 1857 the county contained 801 horses, valued at \$17,500, and 17,838 head of cattle, valued at \$107,120. Value of real estate, \$416,720. Traversed by the San Antonio and Mexican Gulf railroad. Capital, Indianola. Pop. in 1856, 2,114. IV. A southern county of Arkansas, bounded S. W. by the Washita river, here navigable by steamboats, E. by Moro river, and having an area of about 600 sq. m. It has a level or rolling surface, and a good soil suitable for cotton and grain. The productions in 1854 were 88,185 bushels of Indian corn, 8,420 of oats, and 2,126 bales of cotton. Capital, Hampton. Pop. in 1854, 2,351, of whom 624 were slaves. V. A southern county of Michigan, drained by St. Joseph's river and the head waters of the Kalamazoo, and having an area of 720 sq. m. It has a rich soil and an undulating surface, mostly occupied by a scattered growth of white and burr oak. Sandstone and water power are abundant. The staples are grain, hay, and wool, and the productions in 1850 were 385,959 bushels of wheat, 327,544 of Indian corn, 18,779 tons of hay, and 126,991 lbs. of wool. There were 10 corn and flour mills, 8 saw mills, 4 iron foundries, 3 woollen factories, 2 newspaper offices, 18 churches, and 5,864 pupils attending public schools. The Michigan central railroad passes through the county. Organized in 1838. Capital, Marshall. Pop. in 1850, 19,162. VI. A western county of Illinois, occupying a narrow strip of land between the Mississippi and Illinois rivers, the former of which separates it from Missouri, and is joined by the latter at the S. E. border of the

county. Near the river banks the surface is low and frequently inundated; in other localities are high bluffs and table land broken by ravines. In the W. part are valuable coal fields. The staples are grain, hay, beef, and pork, and the productions in 1850 were 146,205 bushels of Indian corn, 3,870 of wheat, and 163 tons of hay. There were 8 grist mills, 2 churches, and 196 pupils attending public schools. Capital, Hardin. Pop. in 1855, 3,768.

CALHOUN, JOHN CALDWELL, an American statesman, born in the Calhoun settlement, district of Abbeville, S. C., March 18, 1782, died at Washington, March 31, 1850. On both father's and mother's side he was of Irish Presbyterian descent. His grandfather, James Calhoun, emigrated from Donegal, Ireland, to Pennsylvania, when his father, Patrick, was only 6 years old. This was in 1733. The Calhoun family, following the tide of emigration then setting southward along the Alleghanies, moved to the banks of the Kanawha, in what is now Wythe co., Va. The incursions of the Indians, consequent upon Braddock's defeat, compelled them to a new emigration, and again moving southward, they established in 1756 the Calhoun settlement, so called, in the upper part of South Carolina, near the Savannah river, in what is now Abbeville district. They were pioneer settlers upon the Cherokee frontier, and were engaged in frequent conflicts with the Indians, in which Patrick Calhoun took a leading part. When the revolution broke out, he became an active whig, and was exposed to great personal danger from the numerous Tories of the neighborhood. In 1770 Patrick Calhoun married Martha Caldwell, born in Virginia, but the daughter of an Irish Presbyterian emigrant. John C. Calhoun, the third son of his parents, was born just at the close of the revolutionary struggle. He showed himself from early boyhood grave and thoughtful, ardent and persevering. In that remote and thinly peopled region it was chiefly household instruction that he received. He was early taught to read the Bible, and his parents strove, though with slight success, to impress upon his youthful mind their own strongly Calvinistic views. At the age of 18 he took to reading history and metaphysics with such application as to impair his health. His father died not long after, leaving the family in but moderate circumstances. He continued to reside with his widowed mother, laboring on the farm, and though most anxious for an education determined not to attempt to obtain it till sure of the means without impairing her comforts. In his 19th year, by the persuasion of a brother, he recommenced his studies with a view to the profession of the law, not however till he had arranged with that brother and mother to be furnished with means to pursue them for 7 years. He declared his preference for the life of a plain planter over that of a half-educated professional man. In June, 1800, he

entered the private academy of his brother-in-law, Dr. Waddell, a Presbyterian clergyman, where he prosecuted his studies with such zeal that after 2 years he was able to join the junior class of Yale college. He graduated in 1804 with the highest distinction. Dr. Dwight, the distinguished theologian, then president of the college, remarked, after a discussion with him on the origin of political power: "That young man has talent enough to be president of the United States." The next 3 years he devoted to the study of the law, 18 months of it in the law school at Litchfield, Conn., then the only institution of the kind in the country. In addition to the regular course of study, he cultivated with great success his talent for extempore speaking. He returned to his native district of Abbeville to complete his studies, and being admitted to the bar established himself in the old homestead and commenced practice. Already he had made himself known. The country at that time was greatly agitated by the aggressions which France and England, in their desperate struggle against each other, were led to commit on neutral commerce. The controversy with England was rendered still more bitter by her claims to visit American ships in search of British seamen. The outrage upon the American frigate *Chesapeake*, committed under this pretext, in June, 1807, had called forth a burst of indignation. In Abbeville, as elsewhere, a public meeting was held to express the feelings of the people. Mr. Calhoun, then a student, was appointed to draw up a report and resolutions. These resolutions he supported in a speech which led to his election soon after to the state legislature. He served, however, only 3 sessions, but so much to the public satisfaction that he was chosen to represent his district in the 12th congress of the U. S. In May, 1811, he married his 3d cousin, Floride Calhoun, with whom he received considerable property. Upon his marriage he removed from the old homestead to Bath, on the Savannah river, a few miles distant. He appears from this time to have abandoned his profession, notwithstanding his good success in it thus far, and his special gifts for it.—He took his seat in congress Nov. 4, 1811, that body having been called together by the president's proclamation a month before the regular day of meeting. The conjuncture was a most important one. The struggle which had been going on for the 3 or 4 years previous in the ranks of the administration party, between those inclined still to promote peace and those in favor of war against Great Britain, was just approaching a crisis. In the election of members of the new congress the war party had gained a complete triumph. They had sent into the house of representatives a number of ardent young men, of whom Mr. Calhoun was one, determined to force the administration into the adoption of the war policy. The election of speaker resulted in the choice of the candidate of the war party by a very decided majority over

both the peace and cabinet candidate. Mr. Calhoun was placed on the committee of foreign relations. A report from that committee, speedily submitted, and understood to be drawn by him, distinctly indicated the policy which the majority were determined to pursue. The time had come, as the report asserted, for choosing between tame submission and resistance by all the means which God had placed within the nation's reach. By the retirement of the chairman of the committee of foreign relations, Mr. Calhoun became the head of that committee, and in that character introduced a bill for an embargo of 60 days, as preliminary to a declaration of war. President Madison having been compelled to send in a message recommending a declaration of war, Mr. Calhoun echoed that recommendation in a report from his committee, and followed it up by a bill declaring war against Great Britain. In his report at the next session from the committee of foreign relations, to which had been referred the papers in reference to a suspension of hostilities, Mr. Calhoun warmly justified the administration in proceeding with the war, notwithstanding the recall of the British orders in council, on the question of impressment alone. He had joined with his colleagues, Cheves and Lowndes, both young men like himself, and the former chairman of the naval committee, in urging, among other preparations for war, an enlargement of the navy. He also took decided ground against the whole system of non-importation and non-intercourse, which had been another favorite measure of the democratic party, and assisted by his votes and speeches in getting rid of what remained of it. The action of these young South Carolinians attracted attention in New England, and the idea presently began to be entertained there of a coalition with South Carolina to put down the Virginia dynasty, and what in New England was denounced as its narrow and anti-commercial policy.—This feeling was a good deal strengthened by what happened afterward in relation to a national bank. The growing financial distress of the government had led, early in 1814, to the suggestion of such an institution. It was reported against by Epes, Mr. Jefferson's son-in-law, and chairman of the committee of ways and means, as unconstitutional. This objection Mr. Calhoun proposed to evade by limiting the charter to the district of Columbia, but it was not thought by the treasury department that such a bank would answer the purpose. At the next session Alexander J. Dallas, lately appointed secretary of the treasury, proposed a national bank with a capital of \$50,000,000, \$5,000,000 in specie, the rest in government stocks; the government to subscribe  $\frac{1}{2}$  of the capital, and to have the appointment of the president and  $\frac{1}{3}$  of the directors, with power, also, to authorize a suspension of specie payments; the bank to be obliged to lend the government \$30,000,000, and not to be required to pay specie during the war or for 3

years after. This scheme was warmly opposed by Mr. Calhoun, who proposed to furnish the government with \$45,000,000 by means of a national specie-paying bank, wholly under private control, and not obliged to lend the government any thing. The capital of this bank was to consist of \$5,000,000 of specie and \$45,000,000 of new treasury notes, which it was proposed to get into circulation by making them convertible into bank stock. This project prevailed in the house by a large majority. But Dallas in a labored report denied that new treasury notes to any considerable amount could thus be disposed of. He dwelt also on the injustice and political danger of a scheme which might enable those federal capitalists who had hitherto held back and refused to lend their money to the government to obtain, to the exclusion of the holders of the existing government stocks, the control of a national bank with a capital 5 times as large as the old bank which the administration party had refused to recharter. These considerations staggered a part of the democratic supporters of the bill, and the federalists, who had supported Mr. Calhoun's scheme as against Dallas's, now joining with Mr. Dallas, Mr. Calhoun's bill fell to the ground. Thereupon Dallas's scheme was renewed in the senate, where a bill was speedily passed for a non-specie-paying bank on his plan. When this bill came down to the house it was vehemently opposed by Mr. Calhoun, and after a very hot debate was defeated by the casting vote of his colleague, Cheves, who, since Mr. Clay's departure as commissioner to Ghent, had been chosen speaker. A compromise scheme was then adopted for a bank with \$30,000,000 of capital, \$5,000,000 in specie, \$10,000,000 in stocks created since the war began, and \$15,000,000 in new treasury notes. But the great points of Mr. Calhoun's scheme were still preserved: the bank was not obliged to lend to the government, nor permitted to suspend specie payments. The senate wished to substitute the main point of Dallas's plan by vesting a power in the president to authorize a suspension, but the house refused to agree to this, and the bill having quickly passed without any such provision, it was vetoed by President Madison as inadequate to the emergency. The peace which speedily and unexpectedly followed, attended as it was by great importations of foreign goods, paying the double duties imposed during the war, relieved the immediate wants of the treasury. But both the government and the country were still subjected to great embarrassments by the unequal value and depreciated state of the currency, growing out of the continual suspension of specie payments by the banks south and west of New England. To remedy this evil, the project of a United States bank, which all now agreed should be specie-paying, was revived in the 14th congress, resulting in the charter of the late bank of the United States. The conduct of this project through the house was intrusted to Mr. Calhoun. He

was chairman of the committee by which the bill was reported, and he asserted in after years, and doubtless with truth, that but for his efforts the bank would not have been chartered. He also supported the tariff of 1816, designed to give to the domestic manufactures which the commercial restrictions, the war, and double duties had called into existence, some safeguard against foreign competition.—Another topic now first prominently introduced into congressional discussion, was that of internal improvements, of which the necessity had been shown by the cost and difficulty of transportation during the war. The president, in his annual message, had suggested such roads and canals as could best be executed under the national authority "as objects of a wise and enlarged patriotism." He referred, indeed, to the objection of a want of express constitutional authority, but suggested that any obstacle from that source might easily be removed. This idea was warmly taken up by Mr. Calhoun, and at the next session of congress, by great exertions, he succeeded in carrying through the house, by the close vote of 86 to 84, a bill appropriating the bonus of a million and a half to be paid by the United States bank, also all dividends upon the seven millions of stock held by the government in that institution, as a fund for internal improvements; each state to be entitled to a share in the expenditure proportioned to its representation in congress, but to be authorized also to consent to the expenditure of its share in any other state. This bill passed the senate, 20 to 15, but, to Mr. Calhoun's great surprise and mortification, was cut short by the veto of the president, on the ground of want of constitutional power in congress to make such appropriations. This occurred just at the close of Madison's term of office (March, 1817), which also brought to a close Mr. Calhoun's very active 6 years' term of service in the house of representatives. Before the next congress met, he was called to take a place in President Monroe's cabinet as secretary of war. He now removed his family to Washington, and resided there permanently for the next 7 years. In the first congress after Monroe's accession, the house resolved, 90 to 75, that congress was empowered to appropriate money for the construction of post roads, military and other roads, and of canals, and for the improvement of water courses; and the secretaries of war and the treasury were directed to report at the next session a list of internal improvements in progress, and a plan for appropriations to aid them. The friends of the resolutions looked up to Mr. Calhoun as their champion in the cabinet against Mr. Crawford, the secretary of the treasury, who denied any constitutional authority for such appropriations of the public money.—Mr. Calhoun found the war department in a greatly disorganized condition, with some \$50,000,000 of outstanding and unsettled accounts, and the greatest confusion in every branch of service. He took means for the speedy settlement of these claims, and drew up

a bill for reorganizing the staff of the army. This bill congress enacted into a law, which still remains in force. Shortly after Mr. Calhoun's appointment as secretary of war, Gen. Jackson, retained on the peace establishment as one of the two major-generals, and appointed to the command of the southern department, was sent to take the lead in person of the forces operating against the Seminole Indians. The orders under which he acted were drawn by Mr. Calhoun. Gen. Jackson interpreted these orders to give him discretionary authority to do as he pleased, and acting also, as he afterward alleged, upon a private intimation of the wishes of the administration, that he should take possession of Florida (though over this there hangs an unexplained mystery), he not only followed the Seminoles into Florida, but seized first upon St. Mark's, and then upon Pensacola. The Spanish minister protested against this violation of the Spanish territory. Mr. Calhoun, in a cabinet council held upon the subject, considering that Gen. Jackson had violated his orders, maintained the expediency of bringing him to trial for it. This was warmly opposed by J. Q. Adams, secretary of state, whose opinion prevailed with the president. The conduct of Gen. Jackson in his Florida campaign became a subject of vehement discussion in congress, and a matter of great sensibility to the general himself. What passed in the cabinet he had at that time no authentic means of knowing, but from an extract of a letter which appeared in a Nashville newspaper, he was led to suppose that while Mr. Crawford, the secretary of the treasury, had attacked his conduct, Mr. Calhoun had joined with Mr. Adams in vindicating it. Ten or 11 years after, as we shall see, his discovery of what had really occurred had a serious influence, not only on Mr. Calhoun's personal relations to the general, then president of the United States, but on his political position and prospects. The question of the signature by the president of the Missouri compromise bill being brought before the cabinet, Mr. Calhoun held the bill to be constitutional, on the ground of a power in congress to prohibit slavery in the territories of the United States, though he was of opinion that such prohibition would remain in force only while the territorial condition lasted, and would not be binding upon any state which might be created out of such territory.—Shortly after the commencement of President Monroe's second term of office in 1821, the question of the succession became one of leading interest. Mr. Calhoun's name was mentioned among others. He was regarded, especially in Pennsylvania, as a statesman of broad views, above mere local or narrow party influences, and disposed, on the question of internal improvements and other questions of national importance, to a liberal construction of the power of the general government. Mr. Crawford was also a candidate for the presidency, and the favorite of the Virginia politicians. But the military exploits of

Gen. Jackson, also brought forward as a candidate, made such an impression on the popular mind in Pennsylvania, that the friends of Mr. Calhoun judged it expedient for them to withdraw his name and to support Jackson instead. Thereupon Mr. Calhoun ceased to be a candidate for the presidency, and contented himself with standing for the vice-presidency. As between the presidential candidates, he assumed a position of neutrality, and as the ability with which he filled the office of secretary of war was generally admitted, he obtained nearly the whole of the Adams and Jackson votes, with some of those for Mr. Clay, and was thus elected by a large majority. Upon giving up his office as secretary of war, he removed his family to Pendleton, now Pickens district, in the extreme northern angle of South Carolina, to an estate called Fort Hill, which had descended to Mrs. Calhoun from her mother, and which continued to be his residence for the rest of his life. Immediately after the choice of Mr. Adams by the house of representatives, through the support of Mr. Clay, a coalition was entered into between the supporters of Jackson and Crawford to oppose the administration of Mr. Adams, and when the election drew near, to support Jackson as his successor. Into this combination Mr. Calhoun, though he had been supposed to prefer Adams to Jackson, entered warmly, and became one of its chief leaders. During the whole of Mr. Adams's term of office, Mr. Calhoun, though debarred by his position as vice-president from any active part in congress, gave his countenance and support to the opposition; and in 1828 he was reelected vice-president on the Jackson ticket, receiving all the votes cast for Jackson, except those of Georgia.—The tariff question had for some years past been a leading topic of public interest. Upon this subject there existed a very serious difference among the supporters of Gen. Jackson. The middle states were at that time almost unanimous for a protective tariff, while the southern and especially the cotton-growing states were for free trade. Mr. Calhoun was the head of this free trade section of the party, while Mr. Van Buren, then a member of the senate from New York, was conspicuous on the other side. It was by his management and his votes that the tariff bill of 1828 was so amended as to be carried through congress, contrary to the expectation which Mr. Calhoun and the free traders had formed, that by adhering to certain provisions desired by the middle states but disagreeable to the shipping interest of New England, Mr. Van Buren and other middle state senators would keep the bill in a shape to be defeated by the combined vote of New England and the South. Mr. Eaton, a senator from Tennessee, supposed to represent the feelings and opinions of Gen. Jackson, coöperated with Mr. Van Buren in this movement, which led Mr. Calhoun to doubt whether the general could be relied upon to bring the protective system to an end. Accordingly he began to cast about for other

means. He turned his attention to the sovereignty of the states, and from being charged with being too national, soon after fell under the accusation of pushing the doctrine of state rights to extremes. Building on the Virginia and Kentucky resolutions of 1798-'9, he propounded the doctrine of nullification, that is to say, the right of each state to prevent the execution within her limits of such acts of congress as she might judge unconstitutional. This doctrine he embodied in an elaborate paper, prepared in the summer of 1828, which being put into the hands of a committee of the South Carolina legislature, and being reported to the house with some softening modifications, was, though not adopted by it, ordered to be printed, and became known as the "South Carolina Exposition." The original draft of this document, in which the whole course subsequently taken by South Carolina is clearly shadowed forth, may be found in vol. vi. of Mr. Calhoun's collected works. At the next session of congress, the first under Gen. Jackson's administration, this doctrine of nullification was brought forward in the senate of the United States by Mr. Hayne of South Carolina, in the speech to which Mr. Webster made his famous reply, and in which, though he answered Mr. Hayne, he struck through him at Mr. Calhoun, who was supposed, though not then certainly known, to be the father of the doctrine. Meanwhile there had occurred a great struggle for influence and predominance with Gen. Jackson between the advocates of the tariff and of free trade. Mr. Van Buren had been appointed secretary of state. Two of Mr. Calhoun's friends had seats in the cabinet, and a fair share of the other offices was given to that side; but their influence with the president was not so predominating as they had hoped, and the idea was soon started among them of superseding Gen. Jackson at the end of his first term and electing Mr. Calhoun in his place. This idea was not agreeable to Gen. Jackson, and things tended fast toward a rupture. Personal alienation soon followed. Gen. Jackson had already sought and soon after obtained a statement from Mr. Crawford of what had occurred in Mr. Monroe's cabinet on the subject of the Seminole war. This statement he transmitted to Mr. Calhoun, who admitted its substantial correctness. Thereupon Gen. Jackson concluded, from this in conjunction with other circumstances, that Mr. Calhoun had been at the bottom of the congressional attacks upon him. The next step in this political schism was the establishment at Washington of the "Globe" newspaper, with a design to supersede the "Telegraph," which had been always under the influence of Mr. Calhoun, to whom it still adhered. Early in 1831, Mr. Calhoun published a pamphlet with a preliminary address to the people of the United States, containing a body of correspondence in relation to the Seminole affair. But though sustained by the "Telegraph" and by a few members of congress and a small section of the Jackson party, he was not

able materially to diminish the popularity and influence of the president, who soon proceeded to reconstruct his cabinet, Mr. Calhoun's friends being requested to follow the example of resigning set by Mr. Van Buren. Mr. Van Buren was appointed minister to England, but at the ensuing session of congress, by a coalition between the old opposition led by Clay and Webster and Mr. Calhoun's friends, the nomination was rejected, Mr. Calhoun presiding, and twice upon ties voting for the rejection. This rejection of Mr. Van Buren led to his nomination and election to the post of vice-president; whereupon, without waiting for the expiration of his term, Mr. Calhoun resigned, being elected to fill the seat in the senate which Mr. Hayne had vacated to become governor of South Carolina. In the summer of 1831, shortly after the reconstruction of Jackson's cabinet, Mr. Calhoun had published an address on the relation which the states and general government bear to each other. In this address he had maintained the right of the states to judge of infractions of the constitution, and in such cases to protect themselves. He insisted that the general recognition of this doctrine would of itself, in a great measure, supersede the necessity of its exercise, by impressing on the movements of the general government that moderation and justice so essential to harmony and peace in a country so extensive as ours. The greater part of this address was occupied, however, in advocating the free trade side of the tariff question, and in urging upon congress to take occasion from the paying off of the national debt to reduce the revenue to the level of expenditure, abandoning any attempt at protection beyond that which might be incidental to the collection of such a revenue. But no attention was paid to this advice. The new tariff of 1832 was as protective as the old one. On the application of Governor Hamilton of South Carolina, Mr. Calhoun now addressed to him a long and elaborate letter in defence of his doctrine of state rights, and of its practical efficiency. It was at once determined to act upon this doctrine, and the same legislature which elected Mr. Hayne governor and placed Mr. Calhoun in the senate proceeded to authorize a state convention, according to the scheme set forth in Mr. Calhoun's original draft of the "South Carolina Exposition." That convention had met, and had passed an ordinance, to go into effect on Feb. 1, to nullify the tariff of 1828 and 1832; and when Mr. Calhoun took his seat in the senate, Dec. 1832, the legislature was again in session enacting laws to carry out this nullifying ordinance. The president on his part had issued a proclamation, entreating the people of South Carolina to reconsider their position, and announcing his intention to sustain the laws of the United States by force if necessary. He also sent to congress a special message calling for additional legislation to aid him in enforcing the collection of the revenue. This message led to

a law, reported by the judiciary committee and defended by Mr. Webster, but stigmatized by its opponents as the "force bill," and very warmly opposed by Mr. Calhoun and his friends in the senate. He also introduced a series of resolutions on the powers of government, which he sustained in an elaborate speech, Feb. 15, 1833, in support of the right of nullification, which right, taken in connection with the power of amending the constitution by the consent of three-fourths of the states, amounted, as Mr. Calhoun contended in this speech, to an appeal in contested cases from the general government to the states themselves, to be decided by a three-fourths vote. Though Mr. Calhoun and Mr. Clay were not at this time on speaking terms, Mr. Calhoun was consulted through a third party as to Mr. Clay's compromise tariff of 1833, the passage of which just at the close of the session prevented the impending collision between South Carolina and the general government. He agreed to accept it as an arrangement of the tariff controversy. It provided in fact for a gradual reduction of the revenue, and an abandonment of the protective system at the end of 10 years. He spoke and voted for it, though very unwillingly as to some of its clauses, the home valuation clause especially. He spoke and voted against Mr. Clay's bill, passed at the same session, but defeated by the president's veto, for distributing among the states the proceeds of the public lands.—The settlement of the tariff question was speedily followed by the removal by the president's order of the public deposits from the bank of the United States, the recharter of which had the year before been defeated by his veto. In the violent struggle in congress, as well as the country, which grew out of that removal, Mr. Calhoun joined with Messrs. Clay and Webster against the administration. In a speech of great energy in support of Mr. Clay's resolutions, condemnatory of the removal of the deposits, he accused the president of attempting to seize on the powers of congress, and to unite in his own hands the sword and the purse. In his view this was a struggle between a congressional bank and an executive bank, for such was the light in which he regarded the league of banks to which the deposits had been transferred. In that view he sided with the opposition, though had it been a question, as he expressed himself, of divorcing the government altogether from banks, he should have hesitated much to be found on the side of the banking system, which he considered very defective and dangerous. In supporting these resolutions he declined, however, to join in denouncing as a usurpation the president's removal of Mr. Duane from the office of secretary of the treasury, because he refused to remove the deposits, and the appointment of Mr. Taney in his place. He held it to be only an abuse, not a usurpation of power, and on that point obtained from Mr. Clay a modification of his resolutions. In a speech on Mr. Webster's bill to continue the

bank for 6 years, giving up the monopoly and some other matters to which objection had been made, Mr. Calhoun argued in favor of a recharter for 12 years. He took the ground that the currency was in a disordered condition produced by the banks, but from which it could only be extricated by bank agency. A national bank was a necessary agent, as he expressed it, "for unbanking the banks," to an extent at least sufficient to restore a safe currency, which purpose he proposed to accomplish by gradually getting rid of bank notes under \$20. He joined with Mr. Webster against Mr. Clay in supporting Mr. Benton's project of raising the relative value of gold and silver to the Spanish standard of 1 to 16. He also warmly supported against Mr. Clay Mr. Benton's bill for branch mints.—The bank controversy led to an amalgamation of the national republican opposition, so called, the late supporters of Mr. Adams's administration and present friends of Mr. Clay, with that fragment of the Jackson party which, on state right grounds, had followed Mr. Calhoun out of it, but without going the length of nullification. This combined opposition took the name of whigs, assumed by them as indicative of their opposition to executive usurpation. The South Carolina nullifiers—an appellation often reproachfully used, but which Mr. Calhoun did not hesitate to apply to himself—still continued a body by themselves, to which he served as chief; for while cooperating for the next 4 years with the whigs, he declined to be classed as of their number. In reference to this subject he declared, in one of his speeches, that he had voluntarily put himself in the very small minority to which he belonged to serve the gallant state of South Carolina, nor would he turn on his heel to be placed at the head of the government. He believed that corruption had taken such a hold of it, that any man who attempted reform would fail to be sustained.—The next session witnessed the commencement of those discussions on the subject of slavery, which have since occupied so much of the public attention. The steps taken toward the abolition of slavery in the British colonies, and the preceding and attendant discussions in that country, had led to the formation of the American anti-slavery society, which displayed its zeal in getting up petitions to congress for the abolition of slavery in the territories and the district of Columbia, and in the wide distribution, for which purpose the U. S. mail was largely used, of tracts and papers denunciatory of slavery, many of which were sent to the southern states. The arrival of these documents in the South happened to be coincident with a slave insurrection in Mississippi, and also with the nomination of Mr. Van Buren to the presidency by a convention of the democratic party held at Baltimore. Very loud complaints were at once raised against this proceeding, as tending, if not intended, to excite the slaves to revolt. Mr. Van Buren's nomination, though favored by Gen. Jackson, had been

warmly opposed by a large southern section of the party, which, in consequence, seceded and nominated as their candidate Judge White of Tennessee. The existence of this northern anti-slavery agitation was strongly urged in the southern states as an objection to voting for a northern candidate for the presidency. Mr. Van Buren's political friends in the northern states, by way of relieving their candidate and themselves from any odium on this score, had joined with the mercantile interest in the northern cities in loudly denouncing the abolitionists. It was under these circumstances that the president referred to the subject in his annual message. While testifying to the general feeling of indignant regret which the proceedings of the abolitionists had aroused at the north (to be no doubt followed up by legislation if needed), he referred to the post office as specially under the guardianship of congress, and suggested a law to prohibit, under severe penalties, the circulation in the southern states, through the mail, of incendiary publications intended to instigate the slaves to insurrection. Mr. Calhoun moved the reference of this part of the message to a special committee, and after some opposition from administration senators, who preferred the post office committee, the motion was carried, and Mr. Calhoun was appointed the chairman. He soon brought in a report, and a bill along with it, subjecting to severe penalties any postmaster who should knowingly receive and put into the mail any publication or picture touching the subject of slavery, to go into any state or territory in which the circulation of such publication or picture should be forbidden by the state laws. This report, starting with the doctrine that the states were sovereign as to each other, bound together only by compact, and that the right of internal defence was one of their reserved rights, proceeded to argue that it belonged to the states respectively, and not to congress, as the president's message had assumed, to determine what publications were to be prohibited. The objection taken in the message to the publications in question had been that they were intended to stimulate the slaves to insurrection. Mr. Calhoun's report went far beyond that. It principally objected to these documents, that their avowed object was the emancipation of the negroes, a measure which involved not merely a vast destruction of property, but what was of infinitely more consequence and danger, the overthrow of the existing relation between the two races inhabiting the southern states—the only relation, as the report contended, compatible with their common happiness and prosperity, or even with their existence together in the same community. Social and political equality between the two races was impossible. To change the condition of the Africans would put them in a position of looking to the other states for support and protection; it would make them virtually the allies and dependents of those states; thus placing in the hands of those states an effectual instrument to destroy the influence

and control the destiny of the rest of the union. The object aimed at by the abolitionists was the destruction of a relation essential to the peace, prosperity, and political influence of the slaveholding states. The means employed were organized societies, and a powerful press, which strove to promote the object in view, by exciting the bitterest animosity and hatred among the people of the non-slaveholding states against the citizens and institutions of the slaveholding states. Such a proceeding tended to the erection of a powerful political party, the basis of which would be hatred against the slaveholding states, and of which the necessary consequence would be the dissolution of the union. It was, therefore, not merely the right of the southern states to exclude those publications, it was also the duty of the northern states, within which the danger originated, at once to arrest its further progress—a duty which they owed not merely to the states whose institutions were assailed, but to the union, the constitution, and themselves. In this report, as well as in his speech in support of the bill, Mr. Calhoun drew an alarming picture of the numbers and zeal of the abolitionists, and of the danger to which the South was exposed from their machinations. He predicted that the obligation resting on the northern states to put a stop to these proceedings would totally fail to be fulfilled. He had not much more hope from congress, but he saw the safety of the South in "the doctrine of state interposition, carried into successful practice on a recent occasion." The bill, though helped along by Mr. Van Buren's casting vote, failed on the final vote, 25 to 19. With respect to petitions for the abolition of slavery in the territories and the district of Columbia, Mr. Calhoun held that they ought to be rejected altogether. He took the ground that congress had no jurisdiction over the subject of slavery, in whatever form it might be presented—no more power over it in the district of Columbia than in the states. The senate, however, decided to receive the petitions and then to reject their prayer. On this latter proposition Mr. Calhoun refused to vote.—Though still voting against Mr. Olay's bill for the distribution among the states of the proceeds of the public lands, he took an active part in favor of the bill for depositing with the states the large accumulated surplus of public moneys, the accumulation of which as a "corruption fund" he had often lamented. The victory of San Jacinto having introduced into congress the question of recognizing the independence of Texas, Mr. Calhoun declared himself not only in favor of that, but of the simultaneous reception of Texas into the union. On the question of the admission of Michigan, he denied the power of the states to confer on aliens the right of voting. He denounced as revolutionary the action of the people of Michigan in forming for themselves a state constitution without waiting for the consent of congress. He expressed his strong dissent

from the principle assumed, as he conceived, in the final bill for admitting Michigan, that the will of a mere numerical majority was paramount to the authority of law and constitution. In connection with this subject he took occasion to address to Mr. Van Buren, lately elected to the presidency, but still presiding in the senate, an emphatic condemnation of the "odious party machine" to which he owed his nomination and election, as the commencement of a most dangerous change, which threatened to supersede the authority of law and constitution by the edicts of a party caucus. Mr. Calhoun had all along opposed Mr. Benton's resolution to expunge from the Journal of the senate the censure upon President Jackson for removing the public deposits from the U. S. bank. He vehemently denounced it now at the moment of its passing as a plain violation of the constitution. He stigmatized the vote in favor of it as originating in "pure, unmixed personal idolatry, a melancholy evidence of a spirit ready to bow at the feet of power." He had for some time been on bad terms with its mover, and had spoken of him with great asperity. As might be expected, he voted with Messrs. Clay and Webster against the confirmation of Mr. Taney as chief justice of the United States. The great accumulation of public money in the deposit banks had led to extensive purchases of public land, by means of money borrowed from those banks, which purchases by increasing the public money on deposit led to new loans and new purchases. The president, just after the close of the late session of Congress, had attempted to check this speculation by issuing a circular order to the land offices to receive nothing but gold and silver in payment for public lands. Mr. Calhoun joined with the opposition in denouncing this circular as illegal and unconstitutional, though he declined to concur in the measure resorted to to get rid of it, principally because it seemed to admit the president's power to issue the order. Another administration measure, professing to have in view the checking of land speculation, was a bill to restrict the sale of the lands to actual settlers in limited quantities. Mr. Calhoun opposed this bill as really intended for the benefit of the speculators who had already overloaded themselves with lands, and whose interest it therefore was to restrict further purchases. In the course of his speech he denounced these speculations as having been directly caused by the action of the government in putting down the national bank and placing the public money in banks arbitrarily selected by the executive, and he charged that high officers of government and persons closely connected with the president had used these depositories as instruments of speculation in the public lands. What he said on this subject was understood by President Jackson as a personal attack on him, and he addressed an imperious letter to Mr. Calhoun, calling upon him either to retract or to bring his charge before the house of representatives as the basis of an im-

peachment. Mr. Calhoun read this letter in the senate. He spoke of it in very severe terms as a breach of privilege, and an attempt to intimidate, and proceeded to repeat what he had said: that many in high places were among the speculators in public lands, and that even an individual connected with the president himself (one of his nephews whose name he now gave) was a large speculator. He soon after brought forward a plan for the cession of all the public lands to the states in which they lay, to be sold by them at graduated prices extending over a term of 35 years, the states to bear the expenses, and to pay over to the general government a third of their receipts. But this proposition, denounced by the administration side as a bid for the favor of the new states, received only 6 votes. Mr. Calhoun renewed at this session his attack upon anti-slavery petitions, insisting that they must be rejected, and that the abolitionists must be silenced, and that not by letting them alone, but by prompt and efficient measures, or the union could not continue. He refused to admit even by implication that the existing relations between the two races in the slaveholding states was an evil. He held it to be a positive good, and developed a theory on this subject which has since obtained a wide currency and acceptance. Not only was it a good morally and economically, it formed, so he maintained, the most solid and durable foundation on which to rear free political institutions. He opposed with earnestness the resolution appropriating \$30,000 to purchase the Madison papers, as not authorized by the constitution. He admitted in this speech that when a young man, and at his entrance on political life, he had inclined to that interpretation of the constitution which favored a latitude of powers; but experience, observation, and reflection had wrought a great change in his views, and above all the study of the argument of Mr. Madison himself in his celebrated resolution of 1798.—Before the next session of congress a great financial crisis occurred, which Mr. Calhoun had foreseen, and had foretold as a consequence of the monetary policy pursued during Gen. Jackson's second term. Shortly after Mr. Van Buren's inauguration, all the banks, the deposit banks along with the others, stopped specie payment. At the extra session which commenced in September, President Van Buren recommended the policy of discontinuing the use of banks as the fiscal agents of the government. He proposed the custody of the public money by officers specially appointed for that purpose, and the exclusive use of coin on the part of the government. Mr. Calhoun, separating from the whigs, with whom he had acted in the struggle on the bank question, gave energetic support to this new system of policy. He did the same at the ensuing regular session. This created on the part of his late allies, who in the close division of parties could ill spare his vote, strong feelings of personal resentment. Mr. Clay, in replying to Mr. Calhoun's speech on the inde-



pendent treasury bill, not only taunted him with desertion, but made his whole political career the subject of one of those invectives in which he so greatly excelled. Mr. Calhoun replied (March 11, 1838); Mr. Clay answered on the spot, and Mr. Calhoun rejoined. This contest abounded with exemplifications of the different kinds of oratory of which each was master; on the one side declamation, vehement invective, wit, humor, and biting sarcasm; on the other, clear statement, close reasoning, and keen retort. These speeches, apart from their rhetorical merits, are of high historical value, from the light they throw upon the secret history of the compromise of 1833. Mr. Calhoun laid great stress upon his, as being the vindication of his public life. In one of his replies to Mr. Clay he declared that he rested his public character upon it, and desired it to be read by all who would do him justice. He did not confine himself to defend, but retorted blow for blow. Some sharp passages also occurred between him and Mr. Webster. Previous to this debate he had been involved in another, in which he had almost the whole senate upon him. It was equally the policy of both the political parties to keep the slavery question out of congress, as a subject upon which it was very difficult to speak or act without offending either the North or the South. With this intent, both houses had adopted rules, the result of which was that all petitions and memorials on that subject were at once laid upon the table, without being read or debated. The northern whigs had indeed voted against this, contending that all petitions ought to be received and referred to their appropriate committees, but still they were as well satisfied as their opponents to avoid or escape debate. Mr. Calhoun did not sympathize in this feeling. Unlike the leaders of the two great political parties, he had no friends to be placed in an awkward predicament, nor any apprehensions of compromising himself. He had already declared his conviction that slavery was a positive political and social good. It appears by a letter of his written in 1847, to a member of the Alabama legislature, and published since his death, that he was from the beginning in favor of "forcing," as he expressed it, the slavery issue on the North, believing that delay was dangerous, and that the South was relatively stronger, both morally and politically, than she would ever be again. Not discouraged by the failure of the South, and even of his own state, of which he complained in the letter above referred to, to back up sufficiently his former attempts, he had offered a series of resolutions having the same object in view. The chief debate was on the fifth, which declared that the intermeddling of any state or states, or their citizens, to abolish slavery in the territories or the district of Columbia, on the ground that it was immoral or sinful, or the passage of any measure by congress with that view, would be a direct and dangerous at-

tack on the institutions of all the slaveholding states. Mr. Clay moved as a substitute two resolutions, one applying to the district, the other to the territories. These resolutions omitted all reference to the moral or religious character of slavery. For "intermeddling" they substituted "interference." The abolition of slavery in the district was pronounced a violation of the faith implied in the cessions by Maryland and Virginia, and its abolition in any territory a breach of good faith toward the inhabitants who had been permitted to settle with their slaves therein, and, in both cases, a ground of just alarm to the slaveholding states, tending to disturb and endanger the union. Mr. Calhoun, though not favoring this amendment, perceiving that the senate would go no further, voted for it. In the course of this debate he stated, in reference to the Missouri compromise, that when it was made he was in favor of it, but that he had since been led entirely to change his opinion, and to regard it as a dangerous measure. He had condemned Mr. Randolph's opposition to it as too uncompromising, too impracticable, but was now fully satisfied that if the southern members had acted and voted in the spirit of Mr. Randolph, abolition might have been crushed for ever in the bud. He rejected with scorn Mr. Buchanan's proffer to support the amended resolution, with a view to soothe and tranquillize the feelings of the South. The South was calm and collected, and could take care of herself. He was anxious, and such was his object in offering those resolutions, to present some common ground on which the reflective and patriotic of every quarter of the union might rally to arrest the approaching catastrophe—an object in which the North was at least as much interested as the South. To new charges made against him by Mr. Clay, of being a partisan of the administration, he indignantly replied that he was no partisan of any man or any administration. He supported the constitutional treasury because it accorded with his principles and views of policy; and he stood prepared to oppose or support, on the same ground, other measures which the administration might propose. It was, he said, his fortune to stand in the senate alone, with no other guide but God and his conscience. He sought neither office nor popular favor. He also denied explicitly any connection with or knowledge of the existence of any party aiming at disunion. On the contrary, he was seeking to preserve the union, by opposing injustice and oppression against the weakest and most exposed section of it, in which it was his lot to be cast. In a subsequent speech on the repeal of the salt tax, he insisted that the union was much more in danger from consolidation than from dismemberment, and that South Carolina, in striking the blow which led to the compromise of 1833, aimed not to destroy but to preserve the union, an object to which that blow had essentially contributed by bringing the protective system to the ground.—Having become a sup-

porter of the leading measures of the administration, Mr. Calhoun called upon Mr. Van Buren and renewed that personal intercourse which had for 8 years been suspended. The plan of separating the treasury from the banks, which had failed in the 25th congress, succeeded in the 26th, and to that success Mr. Calhoun essentially contributed. The denial by congress of the right of petition having become a subject of loud complaint, Mr. Calhoun, in a speech on that topic, insisted that the right of petition was only important in despotic governments, and had been superseded in the United States by the right of suffrage and the practice of instruction (which practice, however, he did not allow to have any constitutional or rational basis). The right of petition had degenerated into a means of assault upon others. He vehemently opposed Mr. Clay's proposition to receive the anti-slavery petitions and to argue the case with the petitioners. To consent to argue the matter would bring down the high moral tone of the South, and would do infinitely more harm there than it could do good to the North. He opposed both the preemption and graduation system proposed by the administration, and the distribution of the proceeds of the public lands among the states, favored by the opposition. As a substitute, he again brought forward his scheme of ceding the public lands to the states. He gave his support to Mr. Van Buren as a candidate for reelection, and induced the state of South Carolina to vote for him. To the measures brought forward by the whigs on their short-lived accession to power, consequent upon the defeat of Mr. Van Buren, he gave his decided opposition, attending, for the first time since his breach with Gen. Jackson, the private caucuses of the democratic members. He defended, in an elaborate speech, the veto power from the attack made upon it by Mr. Clay, in consequence of President Tyler's veto of the bills for chartering a United States bank. He denounced the tariff of 1842 as not only a violation of the compromise agreed upon in 1820, but, in its details, exceedingly oppressive, and in the circumstances of its enactment worse even than the tariff of 1828. The Webster-Ashburton treaty with England he voted for, and defended both the clauses in relation to the boundary of Maine and those which referred to the suppression of the slave trade. He closed his speech on this subject with an earnest vindication of the policy of peace. On the same principle he opposed the bill for the occupation of Oregon, urging also that in a hostile contention for its possession, Great Britain, by means of her possessions in the East, and her lodgment and armaments on the coast of China, would have greatly the advantage of us. We had but to wait, and with the progress of our population, Oregon would be occupied for us by adventurous settlers; or should there be a struggle, delay was for our benefit, as we were constantly growing relatively stronger. He therefore advocated, on this subject, the policy of a "masterly

inactivity."—With March 4, 1843, Mr. Calhoun's senatorial term came to an end. His two great rivals had previously withdrawn from the senate, Mr. Webster by accepting a seat in the cabinet, and Mr. Clay by resigning. Mr. Calhoun had declined a reelection, and did not appear in the next congress. This retirement was perhaps prompted by the fact that he had been brought forward by his friends as a candidate for the democratic nomination for the presidency, to which party he now considered himself to belong. But though his voice and vote in the senate had been willingly accepted, he still remained an object of suspicion and dislike to that large section of the party over whom, or at least its leaders, Mr. Van Buren retained a predominant influence. Instructions having been given to a majority of the delegates to the approaching nominating convention to vote for Mr. Van Buren, Mr. Calhoun, in Feb. 1844, addressed a letter to his political friends, severely criticizing the principles on which that convention was to be constituted, and refusing, on that ground, to allow his name to go before it. This letter appears to have been written with a view to another convention at New York, toward which some steps were taken, but which was not carried out. Meanwhile, Mr. Calhoun, toward the last of March, 1844, was unexpectedly called by President Tyler (who was a candidate also for the nomination of the democratic convention) to fill the place of secretary of state. From that office Mr. Webster had been ejected as preparatory to a negotiation for the annexation of Texas, and it had again become vacant by the sudden death of Mr. Upshur. The latter had already set the negotiation on foot, and, in fact, had nearly arranged informally the terms. The Texans had, however, insisted, as preliminary to a formal treaty, upon a pledge that if, pending its negotiation or before its ratification, they should be invaded by Mexico, with which country an armistice had been arranged, the army and navy of the United States should be employed to defend them. This pledge, given by the American minister in Texas, President Tyler had refused to ratify, on the ground that it exceeded his constitutional powers; but as the Texan commissioners positively refused to treat upon any other terms, Mr. Calhoun renewed it. It took but a few days to put the treaty in form, and immediately upon its signature, which took place on April 12, detachments of the army and navy were sent to the frontiers of Texas and the coast of Mexico. The ground of the invitation extended to Texas by President Tyler to renew her application, already 8 times rejected, for union with the United States, was the apprehension of interference on the part of the British government, to procure the abolition of slavery in Texas, as a step toward its abolition in the United States. The facts on which these apprehensions were based had first been brought to the notice of President Tyler through the agency of Mr. Calhoun, who was thus the real author of

the annexation movement. Lord Aberdeen, in disclaiming on behalf of the British government the special facts alleged, or any secret plot for the abolition of slavery in Texas, or any disposition to resort either openly or secretly to any measures which would tend to disturb the peace and tranquillity of the slaveholding states, or the prosperity of the union, admitted however at the same time, as a thing well known both to the United States and everywhere else, that Great Britain desired and was constantly exerting herself to procure the abolition of slavery throughout the world. In replying, shortly after the treaty was concluded, to this despatch, Mr. Calhoun took the latter admission as an admission also that the British government was laboring to procure the abolition of slavery in Texas, and as having justified on the part of the United States, as a necessary act of self-defence, the treaty of annexation just concluded. The Mexican minister at Washington had given repeated notices that the signature of a treaty of annexation would be regarded by Mexico as an act of war. The treaty, and along with it a copy of Lord Aberdeen's despatch and Mr. Calhoun's reply to it, was sent to the American minister at Mexico, with directions to disavow any disrespect to that country, or indifference to its honor or dignity, and to represent that the efforts of Great Britain to abolish slavery in Texas—which, if accomplished, would lead to a state of things dangerous in the extreme to the adjacent states and the union itself—had compelled the United States to sign the treaty of annexation without stopping to obtain the previous consent of Mexico. The disposition, however, was expressed to settle all questions which might grow out of this treaty, including that of boundary, on the most liberal terms; and the minister was privately authorized to tender Mexico by way of peace offering and indemnity as much as \$10,000,000. On the day of the date of this letter (April 19) the treaty was sent to the senate, where, after a warm debate, it was rejected by a vote of 35 to 16. Previously, however, to this rejection, the treaty had had the effect to defeat Mr. Van Buren's nomination by the democratic convention. He as well as Mr. Clay, the candidate of the whigs, had avowed himself opposed to immediate annexation, on the ground that it was equivalent to war with Mexico. In consequence of this avowal Mr. Van Buren, though voted for by a majority of the convention, failed to obtain the two-thirds vote which the rule of that body required, and eventually Mr. Polk was nominated. Mr. Polk went into the canvass as the avowed advocate of immediate annexation, and the election having resulted in his favor, he became very urgent to have the matter acted upon by congress before his accession to office. At the ensuing session, joint resolutions were introduced for receiving Texas into the union. These resolutions could be carried through the senate only by annexing an alternative provision for a negotiation to be opened on the

subject with Texas and Mexico (the president to act under either provision as he might deem best), and by means of a promise from Mr. Polk that he would act under the latter provision. In this, however, he was anticipated by Mr. Calhoun. Within 8 days after the passage of the resolutions, and on the last day of President Tyler's term of office, he despatched a messenger to Texas to bring her in under the first provision. As Mr. Polk did not see fit to recall this messenger, it is reasonable to suppose that the message was sent with his approval. Mr. Calhoun, who was engaged in negotiations with Great Britain on the subject of Oregon, would have been willing, and expected to retain his position as secretary of state. Though not included in the new cabinet, he was offered the place of minister to England, but declined to accept it. He did not, however, retire to private life. One of the South Carolina senators resigned his seat to make room for him, and at the next session (Dec. 1845) he reappeared at Washington as a senator. In the violent debate at that session on the Oregon question, which threatened to involve a war with Great Britain, he announced himself the decided advocate of compromise and peace. He deprecated war not merely for the cost and slaughter it would involve, but still more for the social and political changes by which it would be attended, especially the increase of the power of the federal government. The Oregon question was peacefully settled. The controversy pending with Mexico ended in war. Though the Mexican government had at first indignantly rejected the advance toward a settlement made by Mr. Calhoun, they had afterward consented to receive a minister, and it is probable that, had an arrangement been seriously and skilfully sought, it might have been effected. The great difficulty was not the unwillingness of the government, but the unpopularity with the people of any concession, which was therefore dangerous to the stability of any government that might venture to consent to it. Without waiting for the Mexican people to become reconciled to a treaty, the president ordered the American troops in Texas to take possession of the disputed territory on the north bank of the Rio Grande. When the Mexicans opposed by force this occupation, the president informed congress that our territory had been invaded and that war had been commenced by the Mexicans, and requested that body to recognize its existence and provide for its prosecution. Mr. Calhoun spoke against the bill introduced for this purpose, but as the case was hopeless did not record his name against it. He was, however, utterly opposed to the war thus commenced, both as unnecessary and unjust. At the next session, the American forces having already occupied the northern provinces of Mexico, Mr. Calhoun, in his speech on the 8 million bill, advocated the policy of abstaining from further invasion. He proposed to hold the country already in

possession as a means of forcing the Mexicans to treat the line of occupation which he recommended being nearly coincident with the boundary afterward obtained, except that it included the peninsula of Lower California. In this speech he declared himself very strongly against any attempt upon the independence of Mexico or the absorption of her inhabited territory. Mr. Calhoun's opposition to the Mexican war drew down upon him two severe attacks on the floor of the senate. In answer to Mr. Turney, he indignantly repelled the charge of ambitious designs. He was not, he said, an aspirant for the presidency, and never had been. At his time of life the presidency was nothing. He would not accept it unless it came to him by the voice of the American people, and then only from a sense of duty. The position was respectable, but there were others infinitely more so. He had rather be an independent senator, devoted to the good of the country, than to be president of the United States, put there as presidents of the United States had been for many years past. What was wanted above all things in the public men of America was independence. In reply to Mr. Benton's charge that it was he who had plunged the nation into the Mexican war, he accepted the imputation of being the author of the annexation of Texas, but he insisted that the responsibility for the war belonged to the president, who had violated the constitution by marching troops on his own authority into the disputed territory, and by the collision thus brought on had forced congress to recognize as a fact a war which that body could never have been induced to declare or to commence.—The Wilmot proviso (that in any territory acquired from Mexico, slavery should be prohibited) having been brought forward in the house as an amendment to the 8 million bill, and this proviso having been warmly urged by resolutions adopted by the united vote of both political parties in the legislatures of many of the free states, Mr. Calhoun again stepped forward as the leader and champion of the slaveholding interest. He introduced a series of resolutions, in which, starting from the principle that the United States are but the states united, and that the territories are the joint property of those states, he denied that congress had power to make any law which should directly or indirectly deprive any state of its full and equal right in this common territory; and that any law operating to prevent the citizens of any of the states from emigrating with their property into any of the territories, would be a violation of the constitution, and would tend directly to subvert the union. No vote was taken in the senate upon these resolutions, but their doctrine, so far as relates to the exclusion of slavery from the territories, has since been fully sustained by congress in the repeal of the Missouri compromise prohibition, and by the supreme court of the United States, in the Dred Scott case. Mr. Calhoun supported these resolutions, not only in 2 speeches in the senate, but in a speech delivered

shortly after the adjournment, March 9, 1847, at a meeting of the citizens of Charleston. He maintained in these speeches that the slaveholding states were the conservative balance of the union, and that it was essential to their own safety and that of the union that they should continue to have at least an equality in the senate, an equality to be maintained at all hazards. He stated in his speech on offering these resolutions that, though he had always considered the Missouri compromise line a great error, surrendering as it did for temporary purposes the constitutional rights of the South, yet for the sake of peace he would be willing to acquiesce in the extension of that line to the Pacific. Of the 2 motions to that effect voted down in the house, the first had been offered by his procurement and on his suggestion. In the course of the following summer he wrote the letter already referred to, in which he developed his policy of "forcing the issue with the North." In this point of view he would regret any compromise or adjustment of the proviso, or even its rejection, without a settlement at the same time of the entire question. He complained in this letter of the recent repeal by Pennsylvania of her law allowing travellers and transient visitors in that state to retain their slaves for a limited term, and of similar repeals in other states. He insisted that the toleration at the North of societies, presses, and lectures which called in question the right of slaveholders to their slaves, and whose object was the overthrow of the institution, could not be acquiesced in without the certain destruction of the relation of master and slave and the ruin of the South. To the question, what remedy there was short of a dissolution of the union, he replied: "Only one—retaliation." The violation of the constitution on the part of the North must be met by refusing to fulfil stipulations in their favor, of which the most efficient was the cutting off of their ships and commerce from entering into southern ports. But, to make this measure effectual, all the southern seaboard and gulf states must join in it, for which purpose a convention of the southern states was indispensable.—At the ensuing session of congress, the city of Mexico being then in the possession of Gen. Scott, Mr. Calhoun submitted (June, 1848) a resolution that to conquer Mexico and to hold it as a province, or to incorporate it with the union, would be a departure from the settled policy of the government, in conflict with its character and genius, and subversive in the end of our free and popular institutions; and he again urged, if a treaty could not be made, his plan of the defensive occupation of such a line as might be fixed on for the boundary. News having soon arrived that a treaty was signed, he warmly opposed the 10 million bill and all other measures looking to a continuation of hostilities. He took occasion also to condemn, as unconstitutional, the duties and taxes which had been levied in Mexico on the president's sole author-

ity. A resolution having been offered in the senate congratulating the French on the success of their revolutionary struggle, he moved to lay it on the table, on the ground that it remained to be seen, in the sort of government to which this revolution might lead, whether it proved a blessing or a curse to France and the world. Mr. Calhoun warmly opposed a bill, introduced on the recommendation of the president, to occupy Yucatan, both for the protection of the white population, who, in danger of extermination by the Indians, had sent to ask assistance, and in order to prevent that country from becoming the colony of some European power. In this speech he explained the origin and objects of the so-called Monroe doctrine, which was assumed by the advocates of the bill as the settled policy of the country. That he denied. Mr. Monroe's declarations were made for a temporary purpose, and had never been acted upon. He saw no advantage to be expected from Yucatan at all commensurate with the cost of its acquisition and the burden of its defence. As to the question of protecting the white race there against the Indians, his sympathies were with the white race, though he denied any aversion to any race, red or black. But it was not quite clear that the war in Yucatan was a war of races, and still less was it clear that the whites were blameless in the matter. Moreover, there was a tendency in all the Spanish American republics to a conflict of the same kind between the whites and the Indians. "Are we to declare now by our acts that in all these wars we are to interpose, by force of arms, if need be, and thereby become involved in the fate of all these countries? Ought we to set such a precedent? No. The first duty of every nation is to itself, and such is the case, preëminently, with the United States. They owe a high duty to themselves—to preserve a line of policy which will secure their liberty. The success of their great political system will be of infinitely more service to mankind than the ascendancy of the white race in the southern portions of this continent, however important that may be." In his speech (June 27, 1848) on the bill to organize the Oregon territory, he warmly opposed the extension to that territory of the anti-slavery provision of the ordinance of 1787. Carrying out the principles of his resolutions, he not only denied any power in congress to exclude slavery from the territories, but in still stronger terms, any power to do it on the part of the inhabitants or legislatures of the territories. Even admitting the power in congress, he denied the justice of excluding the South from any participation in territory, to the obtaining of which she had contributed her full share of money and blood, and to the enjoyment of which she had an equal right. He started in this speech the suggestion that the constitution of the United States, extending into the territories acquired from Mexico, operated to repeal the Mexican laws abolishing slavery. In a

second speech, he went into an elaborate history of the rise and progress of abolition at the North. He complained that the South had encouraged and aided it by admitting political fellowship with politicians who coquetted with abolitionists. He insisted that if the South wished to save the union, or save herself, she must rouse to instant action, such as would evince her fixed determination to hold no connection with any party in the North not prepared to enforce the guarantees of the constitution in favor of the South. By taking that course, a host of true and faithful allies would rally to their support even in the North; or, if not, it would only prove that the South had nobody but herself to depend upon. But it was not merely on the territorial question that the rights of the South must be respected. He enumerated the same grounds of complaint mentioned in the Alabama letter (which had not yet been made public), to which he added the agitation of the slavery question in as well as out of congress, and the total neglect into which the fugitive slave law had fallen—thus laying the foundation of the new fugitive slave act passed soon after. Messrs. Benton and Houston having voted for the anti-slavery clause in the Oregon bill, he denounced them with energy as traitors to the South.—In the election struggle between Gen. Taylor and Mr. Cass, Mr. Calhoun does not appear to have taken much interest. At the short session following the election of Gen. Taylor, he was very busy in efforts to form a union of the slaveholding states, irrespective of all preëxisting party differences, to resist the progress of abolition. For that purpose a series of meetings was held, at which none but slaveholding members were present, and attended at times by 70 or 80 members, a part of whom were, however, not favorable to the object of the meeting. At the first meeting a committee of 15, one from each state, was appointed to report resolutions. This committee appointed a sub-committee of 5, at the head of which was Mr. Calhoun. He drafted and reported an address, which after some modification was adopted, and signed by 48 senators and representatives. It reiterated the same ground of complaint urged by Mr. Calhoun at the previous session, and proposed the same remedy. The union of the South might bring the North to a pause, a calculation of consequences, and a change of measures; if not, the South would stand justified in resorting to any measure necessary to repel so dangerous a blow, without looking to consequences. At the next session, pending the discussion of Mr. Clay's compromise scheme, Mr. Calhoun, who had been for some time laboring under severe pulmonary disease, to which was now added disease of the heart, prepared an elaborate written speech, which was read for him (March 4, 1849) by another senator. He declared in this speech his belief from the first that the agitation of the subject of slavery would, if not prevented by some time-

ly and effective measure, end in disunion. It had, however, gone on till the union was palpably in danger. The question now was, how can the union be preserved? The agitation of the slavery question and the many aggressions to which it had given rise was, no doubt, one cause of the existing southern discontent; but back of that lay another and more potent one. The equilibrium which existed between the two sections of the union when the constitution was framed had been destroyed, and the South was every day sinking in the scale. This had been brought about by federal legislation in excluding the South from the common territory, and overburdening her with taxes; to which was to be added a radical change in the character of the federal government, by which it had concentrated all the powers of the system in itself, and had been transformed from a federal republic, as it originally was, into a great national consolidated democracy. That equilibrium could only be restored by an amendment of the constitution. That amendment he did not specify in this speech, but from his posthumous treatise "On the Constitution and Government of the United States" it would appear to have been the election of 2 presidents, one from the free, the other from the slave states, each to approve of acts of congress before they could become laws. His speech attracted much attention, and was answered by Mr. Webster and Mr. Cass. It was on March 18, in some parenthetical replies to the latter, that Mr. Calhoun spoke in the senate for the last time. He fell back in his seat exhausted, and was taken to his lodgings and his bed, whence he never rose again.—The following is Mr. Webster's estimate of him, delivered in the senate when his death was announced there: "The eloquence of Mr. Calhoun was a part of his intellectual character. It grew out of the qualities of his mind. It was plain, strong, wise, condensed, concise; sometimes impassioned, still always severe. Rejecting ornament, not often seeking illustration, his power consisted in the plainness of his propositions, in the closeness of his logic, and in the earnestness and energy of his manner. Those are the qualities, as I think, which have enabled him through such a long course of years to speak often and yet always to command attention. His demeanor as a senator is known to us all—is appreciated, venerated by us all. No man was more respectful to others; no man carried himself with greater decorum, no man with superior dignity. I think there is not one of us but felt when he last addressed the senate—his form still erect, with a voice by no means indicating such a degree of physical weakness as did in fact possess him, with clear tones and an impressive, I may say an imposing manner—who did not feel that he might imagine that we saw before us a senator of Rome, when Rome survived. I have not in public nor in private life known a more assiduous person in the discharge of his duty. He seemed to have no recreation but the pleasure of conversation with

his friends. Out of the chambers of congress he was either devoting himself to the acquisition of knowledge pertaining to the immediate subject of the duty before him, or else he was indulging in those social interviews in which he so much delighted. His colloquial talents were singular and eminent. There was a charm in his conversation not often found. He delighted especially in conversation and intercourse with young men. I suppose there has been no man among us who had more winning manners in such an intercourse and such conversation with men comparatively young. I believe one great power of his character in general was his conversational talent, and that, along with confidence in his integrity and reverence for his talents, it largely contributed to make him so endeared an object as he was to the people of his state. He had the basis, the indisputable basis of all high character, unspotted integrity and honor unimpeached. If he had aspirations, they were high, honorable, and noble; nothing grovelling, low, or meanly selfish came near his head or his heart. Firm in his purposes, patriotic and honest as I am sure he was in the principles he espoused and in the measures he defended, I do not believe that, aside from his large regard for that species of distinction that conducted him to eminent stations for the benefit of the republic, he had a selfish motive or a selfish feeling."—As a private citizen, Mr. Calhoun was highly amiable and exemplary, enjoying the devoted love of his own family and dependants, and the entire respect and sincere regard of his neighbors. He had 10 children, 3 daughters who died in early infancy, and 5 sons and 2 daughters who survived him. His political views were often gloomy. In the senate he sometimes enacted the part of Cassandra. "How often," exclaimed Mr. Clay, in one of his speeches, "have we witnessed the senator from South Carolina, with woful countenance and in doleful strains, pouring forth touching and mournful eloquence on the degeneracy of the times and the downward tendency of the republic." But in private life he was uniformly cheerful. A personal friend, who had the best opportunities to know him, has furnished us with the following details of his private life at Fort Hill: "Socially he was the most genial and agreeable companion. He entered into the enjoyment of those around him with a sympathy and kindness that endeared him to all. He was fond of promoting innocent mirth, and, though no jester himself, laughed heartily at the jests of others. Though his conversation was ever dignified and never on trivial subjects, yet women and children, and the ignorant as well as the learned, all delighted in his society, and left it with regret. His peculiar charm was his entire forgetfulness of self, and delicate attention to the feelings and wishes of others, which made him the most truly polite man I have ever known. I never saw him depressed or out of humor. He was fond of reading, and in his youth devoted much of his lei-

sure to it, but neither his multifarious occupations nor his cast of mind permitted him to be a general reader. He read to inform himself, and was well informed, but his opinion often expressed was that reading made a secondary, thinking an original mind. He did not disdain, however, but highly enjoyed good poetry, good novels, and able reviews. He was not wealthy, but his pecuniary means, under his excellent management, were amply sufficient for the wants of his family. According to the fashion of his part of the country, he kept open house, and the family seldom sat down alone to a meal. Though himself uncommonly temperate in all things, he enjoyed in moderation the pleasures of the table, at which time he was fond of seeing all his family assembled about him. He used to say that good digestion depended greatly on cheerfulness and equanimity, and he took the lead in promoting at table conversation and gaiety. The mode of life at Fort Hill was simple and rational, and the absence of all form and ceremony, combined with real refinement, made it a favorite resort. Though he never permitted company to interfere with his occupations, he was ready at all times to further their enjoyments. The hours after dinner till bedtime were more particularly devoted to conversation, music, &c. Though not musical, he was fond of Scotch and Irish songs and ballads, his favorites among which he would call for evening after evening, and listen to with unflinching pleasure. Mr. Calhoun rose early, and devoted his mornings to writing. He walked a great deal over his plantation, personally superintending its minutest operations. He was the first or one of the first in that region to cultivate successfully small grain and cotton for market. The slope of the mountain where he resided had been considered too cold and variable in climate for cotton as a market crop, and too far south for small grain. From its position, a very elevated country in a southern climate, that district is peculiarly adapted to fruit, to the raising of which Mr. Calhoun devoted much time and attention, and with excellent success. He not only had the finest melons, figs, peaches, and other southern fruits, but his apples, pears, cherries, grapes, strawberries, raspberries, &c., were equally excellent. These, however, were not raised for sale. He was himself extremely fond of fruit, and he delighted in sharing it with others, enhancing its flavor from his kindly manner of making presents of it to his neighbors. He was not only fond of agriculture, but an eminently good and successful planter. There were a few among his neighbors who differed from him politically, but in agriculture his authority was never disputed. His servants were in all respects well treated. They came to him as umpire and judge. Of their private crops he purchased what he wanted at the highest market price, and gave them every facility for disposing of the rest. A rigid justice regulated his conduct toward them, which they repaid by devoted affec-

tion; and this system of management was so successful that to have been an overseer at Fort Hill was a high recommendation. He was always impatient to return home, and remained there till the latest moment. While there, his agricultural employments and social duties, together with his large correspondence, and in his latter years his works on government, occupied every moment of his time. He was an excellent shot, and till his eyesight failed, generally carried a gun as he walked round his place, rarely missing his aim. He was an unwearied walker, and kept pace with the youngest and strongest of the party. Nature in all her moods and changes was charming to him. He sympathized strongly with her beauty and her grandeur. The mountains near his residence were very wild and picturesque, and he highly enjoyed excursions among them. I have often seen him, when a thunder storm was approaching, walking in his portico, which commanded a fine view of the mountains, apparently wrapt in the contemplation of the sublimity of the scene." In a familiar conversation with an intimate friend a few days before his death—as we learn from another authentic source—he referred in tones of deep interest to the clear streams, the quiet solitudes, and sublime slopes of his native mountain region. In his person Mr. Calhoun was tall and slender. His countenance at rest was strikingly marked by decision and firmness; in conversation, or when speaking, it became highly animated and expressive. His large, dark, brilliant, penetrating eyes strongly impressed all who encountered their glances. When addressing the senate he stood firm, erect, accompanying his delivery with an angular gesticulation, which, with the general cast of his person and character, caused Harriet Martineau to describe him as an "iron man." His manner of speaking was energetic, ardent, rapid, and marked by a solemn earnestness which inspired a strong belief in his sincerity and deep conviction. He disdained all rhetorical circumlocutions, and came directly to the point. He was never commonplace, and never tedious. Upon every subject he was acute, analytical, and original, dealing almost exclusively in argument. His style was forcible, clear, and condensed. He very rarely indulged in tropes and figures, and seldom left any doubt as to his meaning. He himself noted it as a peculiarity of his mind, and one that interfered with his influence over passing events, that he was disposed to follow every thing out to its ultimate results, disregarding its immediate, temporary, and accidental bearings.—The works of Mr. Calhoun have been collected since his death in 6 volumes, the first of which includes a disquisition on government, and a discussion on the laws relative to the government of the United States, which he left behind him unfinished. The editor, Mr. Richard K. Crallé, of Virginia, is understood to have in preparation an elaborate biography of the author, founded on his private papers, and other authentic materials.

**CALI**, or **SAN JAGO DE CALI**, a prosperous town of New Granada, in the department of Cauca, on a western declivity of the Andes. There are 2 churches and several convents, all but one of which are deserted. Pop. 6,000.

**CALIBER**, the inner diameter of a hollow cylinder, particularly applied to that of mortars, howitzers, and swivels. Cannon are generally rated by the weight of the ball they carry.

**CALIBER COMPASSES**, or **CALIPERS**, compasses with legs bowed each into semicircular form, designed for measuring the diameters of balls, cylinders, and objects to which a straight rule cannot be applied. When made especially for artillery use, a scale is applied to them, by which, when the diameter of a ball is found, its weight may be read off; or the weight being given, its corresponding diameter is at once found on the scale. These calipers are merely 2 thin strips of brass connected by a rivet passing through one end of each. Various tables and scales are often introduced upon them, which are likely to be wanted in practice, as tables of specific gravity of bodies, their weights per cubic foot, &c., and scales for the measure of angles, &c.

**CALICO** (so called from Calicut, on the Malabar coast, whence it was first imported), a term applied in England to white or unprinted cotton cloth, in the United States to cotton cloth upon which colored patterns are impressed with the use of dyes. The effect produced is like that of the colored designs brought out by the loom, but with much greater economy of time and labor. This art is known by the name of calico printing. Its origin, like that of dyeing, is traced back to very remote antiquity, and in some form or other appears to have been practised by nations of little skill in other respects. The aborigines of our own country have been in the habit of staining their garments of different colors, which is a rude method of calico printing; while the natives of Mexico, at the time of its conquest by Cortes, produced garments of cotton, adorned with figures in black, blue, red, yellow, and green colors. The magnificent linen cloths of Sidon with their variegated colors were noticed by Homer; and Herodotus makes mention of the garments of the inhabitants of Caucasus adorned with figures of animals dyed in fast colors with infusions of leaves. The account of the process given by Pliny, as practised by the ancient Egyptians, is particularly interesting for showing the skill there attained in the art, as also for describing with great conciseness the principle of the common operations: "They take white cloths, and apply to them, not colors, but certain drugs which have the power of absorbing or drinking in color; and in the cloth so operated on there is not the smallest appearance of any dye or tincture. These cloths are then put into a caldron of some coloring matter, scalding hot, and after having remained a time, are withdrawn, all stained and painted

in various hues. This is indeed a wonderful process, seeing that there is in the said caldron only one kind of coloring material; yet from it the cloth acquires this and that color, and the boiling liquor itself also changes according to the quality and nature of the dye-absorbing drugs which were at first laid on the white cloth, and these stains or colors are moreover so firmly fixed as to be incapable of removal by washing. If the scalding liquor were composed of various tinctures and colors, it would, doubtless, have confounded them all in one on the cloth; but here one liquor gives a variety of colors according to the drugs previously applied. The colors of the cloths thus prepared are always more firm and durable than if the cloths were not dipped into the boiling caldron."—In the different countries of India the art is practised with various degrees of skill. In some the patterns are drawn with a pencil upon the fabric; while in Mesopotamia, as stated by Mr. Buckingham, blocks are employed for producing an impression, as practised by the English block-printers. The Chinese also have long used the same process. The large chintz counterpanes, called palampoor, of an ancient East India fabric, are prepared by placing on the cloth a pattern of wax and dyeing the parts not so protected. From India it appears the art was introduced at an early period into Europe; but it never became of much importance till some time in the 17th century, when Augsburg, in Bavaria, became celebrated for its printed cottons and linens. From this city the art spread into France, Germany, Switzerland, and Great Britain, being introduced into London about the year 1676. Here, being greatly restricted by the opposition of the silk and woollen weavers, it made but slow progress. In 1720 the wearing of printed calico was prohibited by act of parliament, under a penalty of £5 for each offence on the part of the wearer, and of £20 on that of the seller. In 1730 it was allowed to be printed, provided the warp was of linen, and the weft only of cotton; but even then it was subject to an onerous tax of 6d. per square yard. In 1774 the restriction upon the manufacture was repealed; but a tax of 8d. per yard was continued, which was increased in 1806 to 3½d. In 1831 this duty was repealed; and the art which had sustained itself under all the attempts to keep it down, now that it was relieved of the burden of paying an average of 50 per cent. on the goods produced for home consumption, suddenly received a great impetus, so that in place of 8,800,000 pieces of goods manufactured in 1830, the production was increased within 20 years to about 20,000,000. The character of the goods was greatly improved, as well as the processes and machinery; while the cost of production was much reduced by the enormous quantities manufactured. The process of printing by wooden blocks, each one of which of a few inches square was applied by hand, impressing the portion of the figure upon its surface in a single color, and another block sub-



sequently applied in the same spot to fill in another portion of the figure in another color—this process was soon nearly superseded by immense machines constructed with the greatest ingenuity, capable of producing 15 or even 20 colors at once with the same precision as in the case of the simpler machines which printed only 2 or 3 colors at once, while at the same time 600 or 700 times as many pieces were produced per day, as if they had been blocked separately with the same number of workmen employed. The progress of this very important branch of the manufactures of Great Britain is elaborately treated in the valuable treatise upon dyeing, in the work on chemistry by Dr. Muspratt. This also contains full and clear details of the numerous processes, chemical and mechanical, applied in conducting this business to its present high state of development. The art, perfected by the highest chemical talent, which has been most liberally directed to improve it, owes its prosperity as well to the ingenuity of the mechanicians who have applied their skill to the construction of its wonderful machinery; while the taste of the artist has contributed its share to give that constantly increasing elegance combined with novelty of pattern to its products, which secures for them the demand essential to the success of the manufacture. It is curious to consider the great variety of taste which the calico printer is obliged to consult. As articles of dress, his goods are to be worn by the half-clothed savage, fond of a display of gaudy colors; they are to please the most refined tastes of the ladies of civilized nations, of those of eastern harems, and of the wives of African kings. Almost every country upon the globe is a customer for these goods, and each demands peculiar styles, patterns, and colors. These, too, must be varied with the seasons, and always present some novelty. For this purpose artists or pattern designers are especially employed, whose constant occupation is to furnish new patterns, from which the printer selects those he judges most likely to be popular. The expense of this branch is to some of the large establishments as much as \$4,000 per annum; agents are employed to collect in France the new patterns as fast as they appear there, and send specimens to their employers. The French artists are admitted to produce finer designs than the English, while the latter nation claims a superiority in the mechanical departments of calico printing. Indeed, the art of designing is stated by the English to have retrograded, the patterns now produced being altogether inferior to those designed many years ago by artists of great merit. The cause of this is very probably the dependence upon the French, and the facility of copying the work of their artists.—The preparatory operations to which the cloth is submitted before printing have been in part described in the articles *CALENDERING* and *BLEACHING*. Printing involves numerous operations of great diversity, of which but a mere outline description

can be attempted in an article of this character. The old method of printing by blocks is still practised in some parts of the process. The cloth is spread upon the surface of a smooth table covered with a blanket, and receives the impression of the figure, or a portion of it, by the application by hand of the block of wood, upon which the pattern is cut in relief. The surface thus printed varies, according to the size of the block, from 9 to 10 inches in length, and from 4 to 7 inches in breadth. The cloth is moved along the table as fast as printed, and the colors transferred from the block dry upon it, as it is suspended in folds upon rollers. The blocks are sometimes made by raising the pattern with slips of copper inserted in the wood, by which they are rendered much more durable, the frequent applications upon the long pieces of cloth soon causing the wooden blocks to lose the distinctness of outline of their designs. Pins in the corners serve to make small holes in the cotton, which mark the points for placing the block the next time. A second or third color is introduced into the pattern by using a second or third block, so engraved as to fill in the vacancies left by the preceding. A modification of the block, called a "toby," has been contrived, by which several colors have been applied at once.—A complicated machine, exhibiting great mechanical ingenuity, was introduced into the French printing establishments in 1834, by M. Perrot, of Rouen, by which the block-printing process was rendered much more expeditious than by the ordinary hand method. It was named for its inventor, the perrotine. Its construction is too complicated to admit of description. As improved in 1844, it printed variously colored patterns on white ground with the utmost delicacy, and with such economy of labor that two men could print in 8 colors from 1,000 to 1,500 yards of calico daily; an amount of work which with the ordinary block would require 25 printers and as many tearers (assistants for keeping the colors in order to be received with every impression upon the block).—Copperplate printing was introduced in the works near London about the year 1770. The designs were cut in the flat plates in intaglio, and the color, applied upon the whole surface, was removed from the smooth portion, leaving it in the sunken parts. The stuff received it from these on being pressed into them by such a press as is used for printing engravings on paper. The change from these flat plates to a cylindrical form introduced the method called cylinder-printing, the greatest improvement that has ever been made in the art, the importance of which can scarcely be overrated. In some of its forms, not the most complete, it is stated that a mile of calico can be printed off with 4 different colors in one hour, and more accurately and with better effect than by hand blocks. One cylinder machine, attended by one man, can perform as much work in the same time as can 100 men with as many assistants. The invention of the machine is

commonly attributed to a calico-printer named Oberkampf, at Jouy, in France, and again to a Scotchman, of the name of Bell, who constructed one about the year 1785. But Dr. Muspratt maintains that the latter only is entitled to the credit of it, and that "cylinder-printing is purely a British invention." The copper cylinders are from 80 to 40 inches in length, and from 4 to 12 in diameter. They are turned from a solid piece of metal bored through the axis, and the pattern is imprinted upon the surface from a steel cylinder called a mill, upon which the pattern is impressed, before the steel is hardened, from another steel cylinder called the die, on which the design has been engraved in intaglio, as the copper finally receives it. The pattern is complete around the circumference of the roller, and each revolution of this exactly repeats it. In the large calico print works, the engraved copper rollers constitute a very important item in the investment of the capital, the value of the stock of these held by some of the larger print houses being rated even as high as \$300,000. The value of a single one is often from \$35 to \$30. These cylinders, one for each color to be applied to the cloth, are set in a strong frame against the face of a large central drum, made of iron and covered with woollen cloth in several folds, between which and the engraving cylinders the calico is printed as it passes. The color is spread upon the rollers by their revolving each one in contact with an attendant roller, which dips into a trough containing the coloring matter or the mordant properly thickened; thus the engraving rollers receive the color, and impart it, as they revolve, to the calico pressed between their face and that of the fixed drum. The superfluous color is taken cleanly off by a sharp blade of steel or other metal, against the edge of which the copper roller scrapes in its revolution. To this contrivance the name of doctor is given. By its use only the color required to fill the depressions is left on the rollers, and the excess falls back into the trough. The employment of many engraving rollers in a single machine is attended with great difficulties, arising from the multiplication of all the other attendant parts in the same proportion. The cylinders have different diameters as the pattern requires, and must, consequently, revolve at different rates of speed. By passing under many rollers, the calico is in danger of being displaced, and the regularity of the print disturbed. But when every thing is exactly adjusted, the work goes on with beautiful precision, accomplishing an extraordinary amount of work. At the Ardwick print works in Manchester is a magnificent machine of this sort, ordinarily working with 18, but capable of printing 20 colors. In the use of the cylinder machine, particular care is required that the colors and mordants should be brought to the proper consistency by a sufficient quantity of the thickeners or gums employed, so that they may not spread or run into each other; and that the

selection of these thickeners should be with reference to the chemical effect that may result from their mixture with the colors. The arrangement of the colors, too, in their order of succession, must be with reference to the effect that one may have by coming in contact with the other on the cloth. The rooms in which the operations are conducted require to be kept at a proper degree of humidity and warmth, the success of the delicate processes depending in great measure upon due attention to these particulars. As the cloth leaves the printing machine, it is drawn over rollers through a hot-air chamber, raised to the temperature of about 300°, in which it is thoroughly dried and the colors become set. In some instances, after being thus dried, the cloth is left suspended for 1 or 2 days in what is called the ageing room, in order that the mordant exposed to the air should undergo the chemical change which causes it to attach itself permanently to the fabric.—The various methods of preparing and applying the colors and mordants are classed under 6 or more different styles; called, 1, the madder style; 2, the padding style; 3, the topical style, or printing by steam; 4, the resist or reserve style; 5, the discharge style; and 6, the China-blue or pottery style; to which some add the mandarin, in which the color is produced only on silk and woollen fabrics by the action of nitric acid upon the animal tissue. Two or more of these are commonly applied upon the same piece, to produce the various colors of the pattern. Each of them is a complicated process, involving numerous chemical operations, which would require volumes for their full description.—The madder style is like that described by Pliny, quoted above. The coloring matter, which may be madder, or almost any organic dye-stuff capable of imparting its color to water, and forming an insoluble compound with mordants, is not applied to the cloth, but this is printed with the mordant instead, and the color is afterward brought out in the places to which the mordant has been applied, by the ordinary methods of dyeing. By the different engraved rollers, each supplying a different mordant, various shades and colors are afterward brought out by one dye. But before the goods are in a state to receive the dye, it is necessary to remove that portion of the mordant which has not undergone in the drying or ageing that chemical change which renders it insoluble and fixed in the spots to which it is applied. For, if left, it would spread in the dye-bath or vat, and cause the dye to adhere where it should not be seen. From the material used to effect this removal, which is a warm aqueous solution of cow-dung, to which chalk is added if the cloth contains any free acid, the process is called dunging. Solutions of phosphate of soda and phosphate of lime, with a little glue or some other forms of gelatine, thus imitating the composition of cow-dung, are sometimes employed in the want of

the animal product, and are called substitutes. For delicate colors a solution of bran is also used. Not only is the useless portion of the mordant removed by this method, but the material employed as thickening is also dissolved out, and the mordant which remains is the more firmly fixed by uniting with some of the constituents of the dung or of its substitutes. The cloth, after being passed twice through the dung-becks, is several times washed in clean water, and is then ready for dyeing. Upon the care with which the dunging operation has been conducted, the delicate effects to be produced in great measure depend.—The padding style is practised only with mineral colors. A colored ground is obtained by passing the cloth through a tub containing the mordant, and then between 2 rollers covered with blanket-stuff, which press out the superfluous liquid. This is called the padding machine. It next goes through a similar apparatus which furnishes the color. If the object is to obtain a design on a white or colored ground, the cloth may be first mordanted in one padding machine and then printed in the other; or, as commonly practised, be first printed with one of the solutions, and then be padded or winced in the other. Wincing is the passing of goods back and forth a number of times over rollers placed in the dye-becks below the surface of the dyeing liquid.—The topical style, or steam printing, is the application of steam to fix more strongly colors that do not attach themselves firmly to the cloth by being merely printed on together with the mordant. It is called topical from the colors being themselves printed upon the cloth. These are sometimes permanent without the application of steam; and many cheap goods are sold, principally for exportation, in which the fugitive colors, called spirit, fancy, or wash-off colors, are fixed neither by a mordant nor by steaming. Steam not only makes the color more permanent, but gives to it a brilliancy and delicacy of finish. It is applied in a variety of methods—by exposing the goods in a cask, steam-chest, a tight chamber, or receptacle called a lantern, or in that commonly used for calicoes, called the column, to an atmosphere of steam at the temperature of 211° or 212° F. The column consists essentially of a hollow copper cylinder perforated with numerous holes, placed upright in a small apartment furnished with a flue for the exit of steam. Around the cylinder is rolled a piece of blanket, then a piece of white calico, and afterward several pieces of the printed and dried calico. The steam is then let into the cylinder for 30 or 40 minutes.—The resist style is the printing designs with some substance, as oil or a paste, which will protect the portions it covers from receiving any color, and which may subsequently be removed. They may be of a nature to act mechanically or chemically, and designed to resist the action either of a mordant or a color.—The discharge style is producing white or bright figures upon a colored ground, by dissolving out the mordant in goods not yet dyed, or

the dye if this has been first applied, and then printing the portions anew with the hand block. Chlorine and chromic acid are commonly used for removing organic coloring matter, and mordants are dissolved by printing with acid solutions. White figures are thus produced upon the imitation turkey-red bandanna handkerchiefs by letting a solution of chlorine flow through hollow lead types of the form of the figure, the types in 2 corresponding plates, one above and the other underneath, being set in a press which contains a pile of 12 or 14 handkerchiefs. The plates are brought together with a pressure of about 800 tons, and this is sufficient to prevent the chlorine water from bleaching the fabric beyond the limits of the types.—The China-blue style is a method of forming a pattern, partly of white and partly of different shades of blue, by first printing with indigo in its insoluble state; and then reducing this to the soluble state and dissolving it upon the cloth by immersing it in suitable preparations. In this process the dye is transferred into the substance of the fibres, where it is precipitated in the original insoluble form, and of the same variety of shades that were printed upon the goods. It is very curious that in this process the shades when dissolved do not run together, nor even spread upon the portions left white.—Very interesting statistics respecting the production of dyed goods have been collected by Mr. Edmund Potter, reporter for the jury on printed goods in the great exhibition of 1851, and these were made public by him in a lecture the succeeding year, before the society of arts. The immense importance of this branch of manufactures, will justify our giving some space to these details. The annual production of printed cloth in Great Britain, including muslins, de laines, and printed woollens, as well as calicoes, is estimated by Mr. Potter at about 20,000,000 pieces; and in the cotton fabrics about  $\frac{1}{4}$  of the whole importation of the raw material is thus consumed. The entire export of manufactured cotton goods, not including yarns, was in the year 1851, 28,447,108 lbs., and about  $\frac{1}{4}$  of this is supposed to be printed goods. The following table shows the proportions sent to different countries in 1851:

	Pieces.
Hamburg and north Germany, large portion in transit.....	900,000
Holland.....	800,000
Belgium.....	80,000
Denmark.....	22,000
Sweden and Norway.....	84,000
Russia—Odessa only.....	14,000
France—in transit.....	58,000
Naples and Sicily.....	280,000
Sardinia, Tuscany, Trieste.....	720,000
Turkey, Ionian Isles, Greece, Malta.....	1,440,000
Egypt.....	84,000
Gibraltar and Spain.....	360,000
Portugal and Madeira.....	410,000
Chili and Peru.....	1,610,000
Mexico.....	270,000
Brazil and east coast of South America.....	2,650,000
Foreign West Indies.....	600,000
Foreign East Indies.....	600,000
St. Thomas.....	450,000
British North America.....	470,000
United States.....	1,470,000
India.....	1,570,000

	Pieces.
China, Manila, and Singapore.....	550,000
Mauritius and Batavia.....	325,000
Coast of Africa and Cape of Good Hope.....	555,000
Australia.....	237,000
New Zealand and South Sea Isles.....	26,000
California.....	45,000

Total.....15,544,000

The home consumption in 1830 was 2,281,512 pieces; in 1851 it was estimated at 4,500,000, an increase consequent in great measure upon the repeal of the duty. The number of print works in Great Britain and Ireland, in 1851, not including the London district, was 120 in Lancashire, 81 in Scotland, and 1 in Ireland. The great increase of the business in Lancashire for the last 30 years has been by the extension of old establishments, only 1 or 2 print works of great importance having been added in this time, while a greater number of large establishments have been discontinued. The production of France in 1840 was estimated at 8,500,000 pieces. It has since probably increased 1,000,000 pieces. The French production, in consequence of the superior qualities of the goods, ranks next to the English in value, though that of the United States exceeds it in quantity. "The consumption of the United States is more per head for her population than that of any other country in the world; but her printing is more remarkable for mechanical power and speed than for taste; her mode of business, forced in many instances by large capitals on the joint-stock system, varies completely from that of Great Britain. Her cost of production is also much higher from her high-priced labor, coal, and drugs. She protects herself with a 20 per cent. duty, and competes with this country only in her own market. The Zollverein, Austria, and Bohemia produce for their own markets, and by their protecting duties prevent any other supply, except of very fine French goods. Their prints are good in execution, imitations of French taste in the finer goods, and of English prints in the medium and lower qualities. Switzerland is very limited but choice in production, and opens her market to the world with a fiscal duty of only 2½ per cent. Holland has a small production of medium goods, and a very moderate protection, not exceeding 5 per cent. Belgium is highly protected, and produces nothing deserving notice in quality. Naples has a few small print works, and high protective duties. Russia produces printed goods of no great character, and her market is prohibited to the British, except the port of Odessa. Spain likewise produces goods of an inferior quality, to a limited extent, and prohibits imports, except in goods of a very fine quality at a duty of 50 per cent. Occasionally a large trade is done in English prints through the smugglers, chiefly from Gibraltar. Portugal produces very slightly, and imports English goods at a duty of about 30 per cent. Turkey produces a few printed goods, hardly worthy of criticism. Her duties are light, not above

3 per cent. Egypt has likewise revived the art, and with the assistance of European machinery and workmen produces the rudest possible results; duty as in Turkey. Of the production of all other countries, it may be fairly stated, with the exception of those of China, the East Indies, and the negroes, that they are imitations of either French or English goods, and cannot any of them be said to have a school of their own. The Chinese undoubtedly practised the art of calico printing many centuries before it was known in western Europe, but their productions exhibit a very primitive taste and rude execution. In conclusion, Mr. Potter is inclined to think that the production of Great Britain in printed goods exceeds that of all the rest of the world."—The export of printed cottons from the United States in 1857, amounted to \$1,785,685, of which over \$1,000,000 was from Boston. Imports of the same in 1856, \$19,110,752. The value of calicoes manufactured in Massachusetts in 1855, was \$5,213,000.

**CALICUT**, a seaport of Malabar, lat. 11° 15' N., long. 75° 50' E. Pop. about 25,000, chiefly Mohammedans. It was the first Indian port visited by Vasco da Gama; was destroyed by Tippoo Saib, and the inhabitants removed; but it has risen again under English ascendancy. The name of calico is derived from this town, whence this cotton cloth was first imported.

**CALIFORNIA**, one of the western states of the American Union, is situated on the Pacific ocean between lat. 32° 20' and 42° N., and long. 114° 20' and 124° 25' W. It is bounded N. by Oregon; E. by the territories of Utah and New Mexico, following the Sierra Nevada on the line of long. 120° W. to lat. 39°, thence S. E. to the river Colorado on the 35th parallel, and thence by the course of that river; S. by the Mexican state of Sonora, or Old California, and W. by the Pacific ocean. The outline of this state is very irregular. Its general direction lengthwise is N. W. and S. E., and a line drawn through its centre, following the curves of its eastern and western boundaries, would measure about 770 m. The greatest breadth of the state is about 330 m. its least breadth 170, and average about 230 m. Its area is estimated at 155,500 sq. m., or 99,520,000 acres.—It is divided into 45 counties, as follows: Alameda, Amador, Buena Vista, Butte, Calaveras, Colusa, Contra Costa, Del Norte, Eldorado, Fresno, Humboldt, Klamath, Los Angeles, Marin, Mariposa, Mendocino, Merced, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Yolo, Yuba. Of these, 10 have been erected since the state census of 1852.—The state contains 7 incorporated cities, viz.: San Francisco, Sacramento, Marysville, Stockton, Los Angeles, San José, and Benicia. Of these, San Francisco (pop.

In 1852, 84,876, in 1858, 70,000 to 75,000), the commercial capital of the state, situated on a narrow point of land between the magnificent bay of the same name and the Pacific ocean, in lat. 37° 47' 35" and long. 122° 26' 15", is the chief city on the Pacific coast. Within the brief space of 10 years it has sprung from the condition of a small village composed of a few adobe houses and a few hundred inhabitants to that of one of the chief commercial centres of the world. Sacramento City, the political capital of the state, and the second city in importance (pop. 25,000 to 30,000) is situated on the Sacramento river, in the county of the same name, about 90 m. in a direct line and 120 by way of the river N. E. from San Francisco. It is a town of much commercial importance, being at the head of navigation for large steamboats, and the interior depot for the gold collected from an extensive mineral region. Marysville (pop. 10,000), in Yuba co., on the Yuba river, near its confluence with Feather river, is a town whose importance arises from the fact of its location at the head of navigation on Feather river (of which the Yuba is a tributary), and its commanding the trade and travel of the northern mines on Feather river and its branches. Stockton (pop. 7,000 to 8,000), in San Joaquin co., is situated at the head of a "slough" about 8 m. distant from the San Joaquin river, and about 100 m. E. from San Francisco by water. It is the chief depot for the southern mines. Los Angeles, in Los Angeles co., near the coast, is the largest town in the southern part of the state, and was originally a mission station; as was also San José, a beautiful town in Santa Clara co., 7 or 8 m. above the head of San Francisco bay, and about 50 m. from San Francisco. San José was at one time the capital of California. Benicia (pop. in 1858 about 2,000, in 1858 about 1,500) was also formerly the capital of the state, and is situated in Solano co., on the strait of Karquenas, which connects San Pablo and Suisun bays; and while it remained the political capital, it was a place of considerable business importance, but has since declined. Nevada (pop. 5,000 to 6,000), the capital of Nevada co., in the northern part of the state, is the largest mining town in the gold region. It is situated on Deer creek, a confluent of the Yuba, at an elevation of about 3,000 feet above the level of the sea. The other principal towns are San Diego, Trinidad, Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, Santa Clara, Vallejo, San Rafael, Sonoma, Napa, Oakland, Mendocino, Humboldt City, and Klamath, all on or near the coast; east of the Coast range, and for the most part among the mines, are Shasta City, Downieville, Grass Valley, Nicolaus, Mokelumne Hill, Sonora, Mariposa, San Bernardino, Visalia, Columbia, Placerville, Coloma, Auburn, and a few others of less importance.—Two enumerations of the population of California have been taken since its acquisition by the United States, those of

the national census of 1850, and the state census of 1852. Owing to the extremely unsettled state of the population, and the isolated position of a large portion of it, the returns are necessarily very imperfect, and such statistics as were collected at the general census of 1850 were mostly destroyed by fire, and consequently never reached the census bureau at Washington. In 1881 the population (Mexican) was estimated at 33,000. By the census of 1850 the number returned was 92,597; by that of 1852, 264,435. In the latter number were included white males, 177,410; white females, 22,193 (a disproportion between males and females which indicates a very anomalous state of society); citizens over 21 years of age, 115,000. The population in 1852, as carefully estimated (in part from actual returns), was 518,880, of whom 217,750 were white male adults, 70,000 women, 44,680 children under 18 years of age, 4,000 colored persons, making a total American population of 336,380. The foreign white population is put down at 67,000, of whom 15,000 are French, 15,000 Mexican, 10,000 Irish, 10,000 German, 3,000 English, and 15,000 of various nationalities, making a total white population of 408,880; to which add 50,000 Chinese and 65,000 Indians, and the grand total is 518,880. Although a very large proportion of the population of California migrated from the other states of the Union, yet almost every nationality in the world has its representatives there; but the most remarkable foreign immigration has been from China. From 1849 to 1857, inclusive, 75,301 Chinese arrived at San Francisco, 18,484 of whom arrived in 1852, and 15,063 in 1854. During the same term 17,524 took their departure, mostly for their fatherland. Allowing 10 per cent. for deaths, there are now about 52,000 Chinese in the state. They are represented as a very quiet, peaceful, orderly, and industrious people, excelling all other classes in these respects. They are divided into 5 companies, each of which protects its own sick and indigent. Members of the same company rarely quarrel, but there are occasional disputes, and have even been pitched battles, in some of the mining districts, between parties belonging to different companies. Their chief occupations are mining, fishing, washing, and trading in such provisions and articles as are in demand among their own people. They have among their number very few mechanics and physicians, and no lawyers nor priests. A Chinese newspaper was published in San Francisco for several years, but has been discontinued. There is a Chinese theatre in San Francisco. The Chinese usually engage in large partnerships to work or trade, 20 or 30 often joining in mining and 6 or 8 in keeping a shop. Very few are employed to work mines owned by Americans, or as servants. As debtors they are said to be very trustworthy, and they generally preserve the style of dress peculiar to their country. They all know how to read their native language, but have few books.

They are believed to have generally belonged to a very low class in China. Of 10 or 15 who attended the missionary schools at Hong Kong, a few are fair English scholars. There are about 4,000 Chinese women in California, most of whom lead abandoned lives. In religion the California Chinese are nominally Buddhists, but have no temple in California. Their chief religious observances are the worship of their ancestors and making offerings at the graves of their deceased friends. Several days of each year are set apart for these offerings. Each company sends all its dead to China. There are perhaps 50 Christian Chinese in the state. —An attempt is making to colonize the Indians in California, and of the 65,000 about 16,000 are on reservations, of which there are 6 in the state, viz.: Tejon, in Los Angeles co.; Nome Lakee and Nome Cult farms, in Tehama; Klamath, in the county of the same name; Mendocino, in Mendocino co.; and King's river farms, in Fresno co. Each of these reservations, except Nome Cult farm (5,000 acres) and King's river farms (3,000 acres), contains 25,000 acres. On these various reservations 4,100 acres are in cultivation, and the Indians, under the instructions of whites and as wards of the government, are making some advances in agriculture and the arts of civilized life. Mr. Henley, superintendent of Indian affairs for California, in his report for 1887, says: "That Indians can be collected on reservations and subsisted chiefly by their own labor, the experiments we have already made sufficiently demonstrate." Of those Indians not yet settled on reservations a considerable proportion are in a wild, roving state, and subsist by the chase, while others are scattered among the whites in the settled portions of the state, and, adopting only the vices of civilization, seem to be on the road to rapid extermination. —The Sacramento and San Joaquin are the most important rivers in California, the former having its head springs in Mt. Shasta and its connected spurs in the northern part of the state, and the latter rising in the Tulare lakes on the south; they flow toward each other (the former south and the latter north), draining the great valley to which they jointly give name, until they finally unite near lat. 38°, turn abruptly W., and flow through Suisun bay into the bay of San Francisco. Nearly all the tributaries of these rivers are small, and flow chiefly from the Sierra Nevada, the principal being the Feather (with 8 considerable forks), the Yuba, and the American, flowing into the Sacramento, and the Calaveras, the Stanislaus, the Tuolumne, and the Merced, into the San Joaquin. The Sacramento is about 370 m. long, and is navigable for large class steamboats, at all seasons, to Sacramento City, 90 m. from its mouth (or 120 from San Francisco), and for smaller craft to Red Bluffs, about 150 or 200 m. above Sacramento City. The San Joaquin is about 350 m. in length, is navigable for ordinary steamers to Stockton, and for small craft, during the rainy season, to

the mouth of the Tulare slough (about 150 m.) through which a canal is now being cut to connect the river with Tulare lake. Kern river, between lat. 35° and 36°, forms the southern boundary of the mining region. The Klamath flows from Oregon through the N. W. corner of the state, with a considerable affluent from the south called the Trinity, and empties into the Pacific. The Salinas, or Buenaventura, flowing north into the bay of Monterey, drains the valley between the Morena and Coast range mountains. The Rio Pajaro, having its outlet near that of the Salinas, and the Eel and Russian rivers on the north, are considerable streams. The Colorado, forming in part the S. E. boundary of the state, is an important river, navigable for vessels drawing 6 feet of water, and is now being explored and surveyed by the U. S. government. —There are 7 ports of entry in California, viz., San Francisco, Sacramento, Benicia, Stockton, Monterey, San Pedro, and San Diego. California has a sea-coast extending the whole length of the state, following the indentations of the coast, somewhat over 700 m. San Francisco bay communicates with the ocean by a strait about a mile wide and 5 m. long, shut in by low mountains on either side, and appropriately named the Golden Gate, since through it flows and reflows nearly the whole immense tide of seekers for the precious metals, as well as the rich product of their labors. Near the head of this strait, on a peninsula forming the S. W. shore of the bay, is the city of San Francisco. The bay proper is about 60 m. long and 14 wide in the broadest part. At its extremity is the smaller bay of San Pablo, and to the east of the latter that of Suisun, each from 10 to 15 m. square. The other principal bays, beginning on the south, are San Diego, Santa Barbara, Monterey, Bodega, and Humboldt, all small and opening into the Pacific. —There are but few islands on the coast, and they are small. On the south are those of Santa Catalina, San Clemente, and several lesser ones belonging to Los Angeles co.; Santa Cruz, Santa Rosa, and San Bernardino, to Santa Barbara co. Some of these are used for sheep grazing, and others are the resort of great numbers of seal, otter, beaver, &c. The Farallones (or needles) are a small group opposite the Golden Gate, on the southernmost of which is a lighthouse of the first order. —There are few lakes worthy of mention in California. The largest is Tulare, in the S. part of the state, which is very shoal. In the wet season it extends to a length of about 100 m., and in very dry seasons is confined to a much smaller compass, and is fordable in nearly all its parts. Owen's and Kern are much smaller lakes in the same region. Mono is a small lake in Mariposa co., east of the Sierra Nevada. The others are Clear lake, in Mendocino co., in the western part of the state, Klamath (lying partly in Oregon), Indian and Goose lakes on the north. —The most striking feature in the physical geography of California is the existence of 2 great ranges of

mountains running N. W. and S. E., and generally parallel, called the Sierra Nevada (snowy range), and the Coast range. The former shoots off from the latter on the S., the snow-capped Mt. San Bernardino, near lat.  $34^{\circ}$ , long.  $117^{\circ}$  (said to be 17,000 feet high), being the connecting link. Thence it sweeps N. W. to about lat.  $38^{\circ}45'$ , long.  $120^{\circ}$ , whence it extends due N., forming from that point the E. boundary of the state. At the N. end it is again united with the Coast range mountains by a transverse range in which is situated Mt. Shasta, 14,390 feet high, in about lat.  $41^{\circ}15'$ . The Sierra Nevada is by far the most lofty and rugged range, its summit being generally above the region of perpetual snow, and having but few, and those very elevated passes. Its sides are covered to about half their height with a growth of oak, succeeded by forests of gigantic pine, cedar, and cypress, and these by the naked granite and snow. From its W. slope it sends off numerous spurs into the interior valley; and among these lies the great gold region discovered in 1848. The highest peaks, after those already named, are Mt. St. Joseph, about 10,000 feet; the Butte, 9,000; Table Mountain, 8,000; Saddle, 7,200, &c. The Coast range, as its name indicates, runs along the coast, giving it that rock-bound character so forbidding and dangerous. This range averages from 2,000 to 8,000 feet in height, and is divided in its length by long narrow valleys, the Los Angeles, Salinas, Santa Clara, Sonoma, Napa, and others, and also by the bay of San Francisco. The portion to the E. of this bay is known as the Contra Costa range. The breadth of the coast mountains (from the Pacific to the great valley of the Sacramento and San Joaquin) does not exceed 40 miles in most parts of the entire length of the state. The valleys in the midst of these coast mountains, some of which are 60 miles in length by 10 broad, possess an equable and genial climate. On the S. side of the break caused by San Francisco bay, is Monte Diablo, 3,770 feet high, and on the N. side Table Hill, 2,560 feet high. Beyond this point the range is generally low, but with a few very elevated peaks, as Mt. Ripley, 7,500 feet; Mt. St. John, 8,000 feet; and Mt. Linn, the highest of the range, but whose precise altitude has not yet been determined. The interlocking spurs of the two ranges cover the whole northern end of the state, and give it a very broken and rugged character. The mountains of this range are clothed throughout with luxuriant forests, and contain a great variety of minerals, of which some of the most valuable are found in abundance. Between the Coast range and the ocean occur numerous minor ranges and isolated hills, frequently approaching the water's edge, and enclosing a succession of the most beautiful, salubrious, and fertile valleys. The range of the Sierra Morena, or Brown mountains, on the S., lies between the Pacific and the Salinas or Buena Ventura and San Juan rivers. To the N. the Pacific slope is still more broken with low hills

and mountains.—Between the Sierra Nevada and Coast range lies the great basin bearing the double name of the San Joaquin and Sacramento valleys, although really but one geographical formation. This extends N. and S. about 500 miles, with an average breadth of from 50 to 60 miles, and presents evidences of having once been the bed of a vast lake. At the S. extremity are the Tulare lakes and marshes, which in the wet season cover a large extent of surface. Along the great rivers, the valleys are generally low and level, and extremely fertile, rising into undulating slopes and low hills, as the mountains are approached on either side, and broken on the E. by numerous well-wooded spurs from the Sierra. At the N. end is an elevated plateau, about 100 miles in length, covered with rugged hills. East of the Sierra, in Tulare, San Bernardino, and San Diego co., is a region little explored, mostly level, much of it sandy and barren, but to a considerable extent well adapted to grazing, and along the Colorado supposed to have a rich alluvial soil.—On the W. side of the Coast range near Bodega bay are found sandstones, clays, talcose slate, and trap rock. The Sacramento valley over the mountain to the E. contains conglomerates and sandstones, and on the western slope of the Sierra Nevada talcose slates again appear, with granite, trap, and serpentine. There is a volcano in Calaveras co., and volcanic vents, surrounded by deposits of sulphur, &c., occur along the coast.—The climate of California, owing to the diversities of surface and other causes, varies greatly in different parts, irrespective of the great range of latitude,  $9\frac{1}{2}^{\circ}$ , through which the state extends. San Diego in the S. is in about the latitude of Charleston, S. C., and Crescent City in the N. in that of Providence, R. I.; but the climate differs very greatly from that of the Atlantic slope in the same latitudes, and probably from that of any other country in the world. The peculiarities of the California climate generally, as compared with that of the Atlantic states, are, that the winters are comparatively warm; that the rains are confined to winter, and not half so abundant as on the Atlantic coast, the sky clear for  $\frac{2}{3}$  of the year, thunder storms rare and never severe, with hail storms in February and March, but never in summer, nights cold even in midsummer, with little difference in the temperature of winter and summer, particularly on the coast from  $35^{\circ}$  to  $40^{\circ}$ . Properly speaking, California has several climates; the basin of the Sacramento and San Joaquin valleys having one; the western slope of the Coast range, N. of lat.  $35^{\circ}$ , another; and that portion of the state S. of  $35^{\circ}$  still another. The climate W. of the Coast range is different from that E. of the same range, which is less than 60 miles in width. For instance, San Francisco and Stockton are in very nearly the same latitude, one on the coast, and the other in the San Joaquin valley, E. of the Coast range; there is very little difference in the elevation of the 2

places, yet it is stated on very good authority, that during the summer months the mercury ranges about  $80^{\circ}$  higher at Stockton than at San Francisco. At the latter city the mercury seldom rises above  $80^{\circ}$  in the dry, or falls below  $40^{\circ}$  in the wet season. From a weather table kept at San Francisco, from Dec. 1850, to April, 1857, it appears that the greatest degree of cold during that time was  $25^{\circ}$ , or  $7^{\circ}$  below the freezing point, which, says the "California Register," "may be set down as nearly the extreme of cold ever felt here." During 3 of the years, 1852, '58, and '56, the mercury did not fall to the freezing point, and in 1853 the lowest point reached was  $40^{\circ}$ , or  $8^{\circ}$  above freezing. The extreme of heat, for the same period, was  $98^{\circ}$  in Sept. 1852, a very unusual temperature for San Francisco. In 1856 the highest temperature was  $85^{\circ}$ , and in 1851,  $84^{\circ}$ . Snow very rarely falls in San Francisco, and the winters there are said to bear a strong resemblance to the Indian summer of the Mississippi valley. The mercury seldom, if ever, remains at the freezing point 24 hours together. The mean temperature of spring, summer, autumn, and winter, is  $54^{\circ}$ ,  $57^{\circ}$ ,  $56^{\circ}$ , and  $50^{\circ}$ , showing a range of only  $7^{\circ}$ ; and taking the months separately, the range is only  $9^{\circ}$ , the mean temperature of Sept., the warmest month, being  $56^{\circ}$ , Jan., the coldest,  $49^{\circ}$ , and the mean of the year  $54^{\circ}$ . It is doubtful if any other country in the world has so cool summers and so warm winters, yet there are comparatively great changes in summer days, the mercury sometimes falling to  $48^{\circ}$  in July, and rising to  $87^{\circ}$ ; indeed, variations of from  $20^{\circ}$  to  $80^{\circ}$  during 24 hours are not uncommon. The coolness of the summer nights is attributed to the chilling fogs and winds from the ocean. The wind blows, a part of each day, from the N. and N. W. along the coast nearly the whole year. At San Francisco these winds commence pouring through the Golden Gate toward noon, and increase in violence and chilliness till late at night. Heavy fogs occur during the night in the months of June, July, and August, but are of rare occurrence in winter, when the winds are not so strong. The numerous sheltered valleys near the coast are comparatively free from the annoyance of the winds and fogs, and enjoy a delicious and equable climate. In the interior the extremes are much greater, the mercury in the Sacramento valley often rising in summer to  $110^{\circ}$  or  $112^{\circ}$ , and along the Colorado as high as  $140^{\circ}$ ; but owing to the extreme dryness of the atmosphere, this great heat is much less prostrating in its effect than even a considerably lower temperature on the Atlantic side of the continent, and the nights are never so hot as to prevent sleep. In the Sacramento and San Joaquin basin the mean temperature of the winters is about  $4^{\circ}$  below that of the coast, and the summers are from  $20^{\circ}$  to  $80^{\circ}$  above. The greater heat of summer is supposed to result from the absence of the ocean breezes and fogs, and the cold of winter from the proximity to

the snow-capped Sierra Nevada.—California has a rainy and a dry season, the former nearly corresponding to the winter, and the latter to the summer of the Atlantic region. The rains begin at the N. early in autumn, but do not fall in the latitude of San Francisco, in any appreciable quantity, until about the middle of December. For the 7 years from 1850 to 1857 the mean annual fall at that point, during the 6 months from Nov. to April, inclusive, was 20.95 inches, and but 0.22 during the other half of the year. In Jan. 1856, rain fell on 11 days; in Feb., 2; March, 5; April, 8; May, 6; June, July, and Aug., none; Sept., 2; Oct., 6; Nov., 10; Dec., 12; total, 62 days in the year. Snow is very rare on the coast, or in the valleys, and never remains for many days except in the Klamath valley, where there is sometimes a month's sleighing during a winter. There are many mining towns high up in the mountains where the snow falls to a great depth, and lies till late in the spring. During autumn many of the rivers sink in the sand soon after leaving the mountains in which they rise; the plains and hills are baked hard to the depth of many inches; the grass and herbage, except near springs and in swampy ground, are dried up and burned as brown as the earth they grow upon. Earthquake-shocks are quite frequent in California, but rarely so severe as to do any damage. It is said that 20, 50, and 70 years ago, houses were thrown down by them, but nothing of the kind has occurred since the American occupation.—Of the productions of California, gold is beyond comparison the most important; although, were this at once withdrawn, its other resources would render it still one of the richest countries on the globe. Considering the length of time during which the region has been known and partially occupied, the very recent discovery of this great natural wealth is remarkable. So lately as the year 1836, the "Penny Cyclopædia" rated its agricultural capabilities very low, and thus briefly disposed of its mineral resources: "In minerals Upper California is not rich. A small silver mine was found E. of St. Ines, but it has been abandoned. In one of the rivers falling into the southern Tule lakes gold has been found, but as yet in very small quantity." Eleven years later, however, the discovery of a rich deposit of gold stimulated an eager search, which has ever since been prosecuted with continually widening results, until what is now known as the gold region extends from Oregon in the N. to Kern river on the S., a line nearly 500 miles long by from 10 to 150 m. wide, covering an estimated area of from 11,000 to 15,000 sq. m. In addition to this, rich deposits have recently been discovered on Frazer river, in the British possessions, to which a large emigration is now (Aug. 1858) going on, but which are not yet sufficiently developed to warrant any estimate of their extent. The metal has also been found in various parts of Oregon, and probably the whole range of mountains, from about lat.  $50^{\circ}$  to  $35^{\circ}$ , is more or less continu-



ously auriferous. The portion within California lies along the western slopes of the Sierra Nevada; but gold has also been found on the eastern side, and among the mountains of the coast. In the latter, its amount has been supposed to be so small that its production could never become profitable, but recent discoveries in Marin co. (near San Francisco) and elsewhere, indicate the existence of rich auriferous quartz in considerable abundance. Mining is now (1858), successfully carried on in portions of 28 counties; but the proportion of the region actually occupied to that profitably available does not yet, as we infer from the statements of Dr. Traak, state geologist, exceed 4 or 5 per cent. Operations were at first confined to the "diggings" requiring merely manual labor and some simple apparatus for separating the gold from the soil by washing. The gold thus found is generally in a nearly pure state, and in all forms from minute particles to lumps of several ounces and even pounds in weight. This species of industry is still prosecuted with vigor, and in many places deep shafts have been sunk and broad hills tunnelled in search of richer "placers," enterprises often crowned by rich rewards. But the largest deposits are found in the beds of streams, many of which have been turned from their natural channels in the search. Ancient river beds, long since dried up, are also found richly charged with the precious metal. A remarkable vein of some hundreds of feet in width, called the Great Blue Lead, in Sierra co., presents abundant evidences of being such a bed, although it has been traced through the centre of hills, and in places is crossed by large living streams or obliterated by deep ravines. Wherever traced, it is walled in by steep banks of rock, between which are sedimentary deposits of light-blue clay impregnated with arsenic, tightly packed with rounded and polished pebbles and boulders of quartz, resting on a hard bed-rock worn into long, smooth channels. It contains throughout very large deposits of gold, of which, as in living streams, the finer particles are found at the sides and mingled with the clay, and the heavier and firmer in the centre, resting on the bed-rock. For a distance of 20 m. this bed has been worked, either on the surface or by tunnels through the superimposed hills, and found uniformly presenting the same characteristics. In the dry season the natural supply of water essential to mining is in great part cut off, and for this reason, as well as to render available mining lands at a distance from streams, canals and ditches have been from time to time constructed, amounting in 1857 to 4,405 m., at a cost of \$11,890,800, with about 900 m. more in progress. But the auriferous quartz found throughout the region, and doubtless from the disintegration of which all the deposits of "dust" have been derived, promises to be the most permanent and certainly remunerative source of the precious metal. This occurs in veins and ledges of greater or less extent, and

varies greatly in yield. An average return of \$15 to \$20 per ton is considered profitable, but this is occasionally many times exceeded. The richest veins as yet worked are at Grass Valley, Nevada co. The Allison Ranch vein, in that locality, yields \$300 per ton. The capabilities of this species of mining are as yet but imperfectly developed, since, from the greater outlay of capital and ingenuity required, it is but a few years since it became permanently established; but the abundance of the material would seem to require ages to exhaust it. The rock is crushed in powerful mills, and the gold extracted by amalgamation. Of these mills (the first of which were erected in 1851), there are now (Aug. 1858) in operation 188, of which 86 are propelled by water, 48 by steam, and 4 by horse power, and several more are in course of construction. The aggregate number of stamps used in these mills is 1,521. These mills are situated in 16 different counties, but chiefly in Amador, Calaveras, El Dorado, Mariposa, and Nevada. It is quite impossible to obtain any accurate figures showing the amount of gold taken from the mines. The only records from which an approximate estimate can be made, are the books of the custom-house and the U. S. branch mint at San Francisco, which show the amount shipped according to the manifests of the vessels leaving port, and the amount deposited for assay, coinage, or otherwise. These figures give the following result:

Years.	Shipments.	Deposits.
1849.....	\$4,951,250.....	\$5,223,240
1850.....	27,674,946.....	35,804,236
1851.....	43,528,005.....	55,553,990
1852.....	45,536,184.....	58,070,676
1853.....	57,521,094.....	64,493,585
1854.....	51,439,093.....	45,512,033
1855.....	45,123,651.....	49,013,945
1856.....	51,142,263.....	53,879,921
1857.....	49,340,186.....	19,750,000

Total, 9 years..\$376,191,633.....\$385,255,454

What proportion of the shipments had passed through the U. S. mint it is impossible to tell, and how much has been brought away in private hands is unknown. It is estimated that 100,000 miners have returned from California to their homes, each of whom took with him more or less gold, and this added to the quantity manufactured into ornaments must swell very considerably the amount as exhibited by the deposits at the mint. It has been estimated by intelligent persons familiar with the commerce and industry of the state, that the entire gold product of California, since the first discovery of the precious metal, is not less than \$600,000,000.—Nearly all other minerals, as well as gold, are found in California. Of these, quicksilver is the one which has hitherto received most attention. Cinnabar (ore of quicksilver) is found in several localities; but the principal mine yet opened is at New Almaden, Santa Clara co., which is being worked in a very thorough and scientific manner, employing 200 men. The Guadalupe mine, in the same locality, put in operation in 1856 with a force of 100 men, proves very rich. The total

export of quicksilver in the years 1854-'5-'6, was \$1,619,886. Silver occurs associated with gold and copper in the quartz of the southern district, also with galena and blende; and argentiferous galena is found in the primitive and transition limestones abounding in Monterey co. The amount of silver deposited at the branch mint of San Francisco, in 1855-'6, was \$12,149,88 ounces. Copper is much more widely distributed than silver, occurring in veins, containing many varieties of ore and some native copper. A vein, strongly impregnated with silver, is profitably worked at Hope Valley, El Dorado co. Iron ores are found in almost every variety throughout the coast mountains, as well as in some parts of the auriferous district of Mariposa co. Sulphate of iron, or cop-peras, is found in abundance near the town of Santa Cruz. There is also an extensive bed of magnetic iron near the same locality. Platinum appears to be as widely distributed as gold; and Dr. Traas considers it destined ultimately to form a leading element in the commerce of the state. Chrome ores are found in masses and in veins running through serpentine rocks, chiefly among the north-eastern spurs of the Sierra Nevada. The ores of nickel abound in the primitive rocks of the coast mountains, and those of antimony in the Monte Diablo range, the latter containing a considerable quantity of silver. Rich lead ores are found in San Bernardino co. Anthracite is said to occur in San Diego, San Joaquin, Solano, Butte, and other coa.; mines have lately been opened in San Diego, which promise a sufficient yield to supply the whole Pacific coast. Very fine qualities of marble, granite, and buhr-stone are widely distributed. Salt is manufactured from a small lake at the Pacific salt works near Los Angeles; there are also numerous small salt lakes and springs at various other points. Asphaltum and sulphur are found on the surface along the southern coast in large quantities. Bismuth, gypsum, and many varieties of precious stones, occur throughout the mountains. Mineral springs of every variety exist; and those in Alameda, Calaveras, Napa, Santa Clara, and Shasta coa. are highly esteemed for their medicinal qualities.—The latest estimate of the agricultural capabilities of California gives 41,622,400 acres of land adapted to cultivation; swamp and overflowed lands capable of reclamation, 5,000,000; grazing lands, 80,000,000; total farming lands, 76,622,400 acres, or 119,722 sq. m. This is a much larger proportion of the whole surface than would seem probable, from the great extent covered by mountains; but many portions of these are available for grazing, and they present numerous fertile elevated valleys and plateaus. Captain Wilkes, in 1842, computed the arable land at only 12,000 sq. m., and 10 years later it was estimated at 42,420. The soil of the valleys, both on the coast and in the interior, is generally very rich, producing in abundance all the fruits and cereals of the temperate zones; and in the southern districts

nearly all the most valuable products of the tropics are cultivated with success. The wild oat grows luxuriantly in the Sacramento valley and to the westward. This cereal in the dry season and forms excellent fodder. The average yield of wheat, barley, rye, buckwheat, and beans, is stated at about 80 bushels each; oats, 88; Indian corn, 81; peas, 28; potatoes, in different counties, from 70 to 300. Many districts, however, produce crops very much above these averages; thus of oats and barley, from 50 to 75 bushels to the acre is said to be a common yield, and a field of 82 acres of the former, in Alameda co., averaged 184 bushels in 1856; Indian corn in Alameda, Los Angeles, and Sonoma, averaged nearly 40 bushels; in Sacramento, 60, &c. Successful experiments have been made in the cultivation of cotton, tobacco, sugar-cane, and the mulberry; and incorporated companies have been formed for the cultivation of rice in the marsh lands, which appear to be well adapted thereto, and for the production and manufacture of the sugar-beet in Santa Clara co. The production of fruits, both in variety and amount, is represented as unparalleled. The following enumeration of those of Los Angeles, on the coast, and intersected by lat 34°, will apply equally well to many other counties: apples, apricots, aloes, figs, grapes, lemons, nectarines, oranges, olives, plums, pears, peaches, pomegranates, pineapples, quinces, raspberries, strawberries, and walnuts. The culture of the grape, and manufacture of wine, are fast becoming a leading industrial interest of the state; in the city of Los Angeles alone over 100,000 gallons of wine, of excellent quality, were manufactured in 1856. The amount of land under cultivation in 1856 was 578,963 acres; and the product of the principal staples was as follows: wheat, 8,979,082 bushels; barley, 4,689,678; oats, 1,263,359; potatoes, in 25 counties, 16,484 acres; butter, 424,326 lbs.; cheese, 257,738, &c. Number of fruit trees: apple, 320,500; peach, 619,998; pear, 59,171; cherry, 25,264; all others, 163,861; not specified, 107,994; grape-vines, 1,581,224.—Among the native vegetable productions, there are numerous varieties of trees of great value, some of which attain to an unparalleled size. The most remarkable are the redwood, and the mammoth evergreen coniferous trees of the Linnean genus *cupressus*, or *taxodium* of later botanists. Endlicher, about 1850, placed the former in a new genus, naming it *sequoia*; and on the discovery of the latter, a few years later, classed it as another species of the same. The mammoth tree (*S. gigantea*, Endl.) became known to botanists about 1858, and was named by some the *Washingtonia gigantea*. It has been found only in small groves on the Sierra Nevada, at a height of about 4,500 feet above the sea level. The first known specimens were a cluster of 92 within a space of 50 acres, in Calaveras co., since become a resort of tourists, and named Big Tree Grove. Four other collections of them have been found, the largest in

Mariposa co., containing 184 trees over 15 feet in diameter, and nearly 800 smaller ones. In all these groves there are many trees from 300 to 400 feet high, from 25 to 84 feet in diameter, and of exceedingly graceful proportions; and some of the largest that have been felled indicate an age, by the ordinary mode of reckoning, of from 2,000 to 3,000 years. The wood closely resembles red cedar, with not quite so even a grain, and is very durable; the bark in some specimens is 18 inches thick, of a stringy, elastic substance, and reddish brown color. Seeds of this tree have been planted in England, the young trees, 3 or 4 feet high, are said to be growing thriftily, near the level of the sea. The redwood (*S. sempervirens*, Endl.), which bears a strong resemblance to the mammoth tree and is sometimes mistaken for it, frequently grows to a height of 300 feet and a diameter of 15 feet. It is a soft, straight-grained, free-splitting, extremely durable and very valuable wood. This tree is found on the plains or mountains near the ocean, and grows in dense and large groves. The sugar pine (*pinus Lambertiana*) is a magnificent tree in size, and one of the most graceful of the evergreens. It grows about 300 feet high and 12 feet diameter at the base. The wood is free-splitting and valuable for lumber. It grows on the Sierra Nevada. Instead of emitting the resinous substance of the ordinary pine, it furnishes a saccharine sap, which by evaporation becomes granulated and crystallized, and has very much the appearance and taste of common sugar. The Douglas spruce (*pinus Douglasii*), the yellow pine (*pinus brachyptera*), and the white cedar (*libocedrus decurrens*), are all large trees, growing more than 200 feet high and 6 or 8 feet through at the butt. The wood is coarse-grained and is not valuable for joiner-work. The nut-pine (*pinus edulis*), the cones of which contain edible seeds about the size of the kernel of a plum stone, grows on the coast mountains and at the base of the Sierra Nevada, and is of little value. The California white oak is a large, wide-spreading tree with a crooked trunk, and is of no value except for fire-wood. Among the other trees and shrubs found in California, may be mentioned the evergreen oak, the maderone, manzanita, willow, sycamore, bay-tree, cottonwood, horse-chestnut, live oak, spruce, fir, cedar, ash, beech, and other trees of commercial value. The almond grows wild in the coast mountains in Santa Clara co. A wild coffee tree, bearing a berry much resembling the real coffee, grows in Calaveras co. Edible berries of various kinds abound in some portions of the state. There is also a great variety of indigenous grasses. Many species of California trees and shrubs bear a strong resemblance to species found in the Atlantic states and Europe, but they are not the same, and many of the trees of other parts of the continent do not grow in California. The botany of the state generally presents peculiar charac-

teristics, offering a highly interesting field for scientific investigation.—No portion of the world offers better facilities for grazing and wool-growing than a great part of California, and considerable enterprise is already exhibited in that direction. The following is the return of the number of domestic animals for 1856: cattle 684,248, horses 109,991, mules and asses 30,641, sheep 253,312, goats 4,544, swine 186,585, poultry 266,336. The whale fishery is prosecuted to a small extent on the coast. The salmon fishery of the Sacramento river extends over a distance of 50 miles, employing, in 1856, 150 boats, 400 men, and a capital of \$75,000; number taken, about 450,000, averaging about 15 lbs. each; total value estimated at \$84,375. The native quadrupeds of California are numerous, of which the principal are the grizzly and other bears, cougar, wolf, wolverine, wildcat, the coyote (an animal between a fox and a wolf), moose, elk, antelope, mountain sheep, deer, lynx, fox, badger, raccoon, marmot, hare, rabbit, squirrel, &c. Of fur-bearing animals, the sea and land otter, seal, beaver, and muskrat. Of birds, vultures of great size, the golden and bald eagle, turkey buzzard, hawks of various kinds, gerfalcon, owl, raven, shrike, robin, thrush, lark, magpie, jay, woodpecker, humming-bird, swallow, grouse, curlew, goose, duck, penguin, pelican, albatross, and various other game and sea birds. Of fishes, the sturgeon, bass, mackerel, codfish, crawfish, blackfish, clams, oysters, lobsters, crabs, halibut, sharks, trout, salmon trout, smelts, sardines, salmon—the last 2 in sufficient abundance to be articles of export. Horses and cattle roam wild in great numbers over the uncultivated districts, and before the discovery of gold the hides of the latter furnished almost the only article of export.—Perhaps the most wonderful of the many remarkable natural curiosities of California is the Yosemite valley or dell, with its surrounding cascades and mountain peaks. The name of this valley is sometimes written Yo Hanity and Yohamite; but Yosemite is the orthography more generally adopted. It is described by writers who have recently visited it as possessing scenery unmatched for wild and romantic beauty and sublime grandeur. Its course is nearly east and west. It is about 10 miles long and nearly 8 miles wide in the centre, from which it decreases in width each way. It is bounded on all sides by walls of yellowish granite from 2,000 to 4,500 feet high, generally very precipitous, and in places perpendicular, so that the valley is accessible only from the ends; and here within a radius of 5 or 6 miles are 5 cascades ranging from 850 to 2,000 feet in height, and as many rocky mountain peaks whose height ranges from 2,900 to 4,480 feet. "The valley," says a recent visitor, "is a cleft in the Sierra Nevada, watered by the main fork of the Merced river, which, above and below, makes its way through the mountains in deep and dark gorges, scarcely getting a glimpse

of sunlight except when it passes through the Yosemite meadow." The scenery from the ridge overlooking the valley is represented as magnificent. Entering at the western end, the dell is reached by a circuitous and precipitous descent of 2,500 feet, new and beautiful views presenting themselves every few minutes. The valley is mainly a level sward of luxuriant grass intermixed with ferns and bright flowers, with here and there a few oak, pine, and other trees. A small creek about 70 feet wide empties itself over the S. wall of the valley 940 feet perpendicularly, forming the Rainbow cascade, so called from the beautiful rainbow colors which adorn the mist floating about it. On the N. side of the valley, nearly opposite and about  $\frac{1}{2}$  of a mile distant, stands "the Captain," a rock projecting into the valley, and rising up perpendicularly 3,090 feet. A little further E., on the same side of the valley, stands Signal rock, whose peak is 2,928 feet high. Four miles above the Rainbow, on the N. side, are the falls of the Yosemite. Here the creek leaps down 2,068 feet in 8 falls, the 1st being about 1,300 feet, the 2d 250, and the 3d about 450. So far as height is concerned, the Yosemite, sometimes called by the Indians the fall of Chohlock, is no doubt the most extensive waterfall yet discovered; but from the limited volume of the stream it is said to be less impressive to the beholder than Niagara. As seen from a distance it is said to resemble somewhat a great sheet of white satin hanging over the cliff. On the S. side of the valley, opposite the Yosemite fall, stands Pyramid rock, 3,200 feet high, a peak which receives its name from its peculiar shape. Three miles further up, near the head of the valley, is Lake Mirror, a beautiful body of water containing about 8 acres; and on the N. side of this lake stands a huge rock called the North Dome, 3,680 feet high, and surmounted by a dome-like knob. On the S. side, standing a little back from the lake, is the South Dome, which towers high above all its fellows, rising up perpendicularly on its northern face 4,481 feet. "Its abruptness," says an eye-witness, "is almost inconceivable, and its grandeur indescribable." The S. fork of the Merced comes down through a gorge and empties into the valley on the S. side. Up this gorge, which is ascended with great difficulty, about one mile from the dell is the Vernal or Canopah fall, where the Merced, about 100 feet wide, falls 850 feet into a basin surrounded by large evergreen trees. Half a mile further up this stream is the Nevada or Awanee fall, about 700 feet high, for half of which distance the water falls in a perpendicular sheet, when it strikes a steep cliff which breaks it into a snowy, feathery spray, whence it leaps along to the bottom. About 2 m. W. from the Nevada fall is another cascade called the Tuasyac fall, about 600 feet high, and exceedingly difficult of access. "No description," says the tourist already quoted, "can convey a clear idea of the great variety of

scenery in the valley. There are a thousand nooks and corners and woody dells, every one of which is full of enchanting picturesqueness. The rocky cliffs take all manner of queer forms, sometimes resembling pyramids and cones; again resembling castles, domes, chimneys, and spires. In one place there is a narrow cleft several hundred feet deep in one of the rocks, as though some giant had commenced to split off a part of the mountain, and had left his work unfinished." The valley is not inhabited. A few years ago it was the home of a small band of warlike Indians, but they have all disappeared. It is understood that it will be settled soon, and that houses of entertainment will be erected for the accommodation of tourists, for whom it may yet become a famous place of resort. The valley was first entered by a white man in 1843, and afterward at various times from 1850 to 1852; but it attracted no notice from the press till 1854, and did not become a place of resort till 1856.—The geysers of Napa co., about 60 miles north of Napa City, are also remarkable natural phenomena. They are a collection of hot sulphur springs, the water of which is continually in a boiling state, and is in several places thrown into the air to a height of 10 or 15 feet. Hundreds of fissures in the sides of the mountains emit strong currents of heated gas, accompanied by a roaring noise, as of the blowing off of steam from an immense boiler. "Beneath your footsteps," says Prof. Sheppard, "you hear the lashing and foaming gyrations, and on cutting through the surface are disclosed streams of angry, boiling water." The Buttes are a small detached range of mountains in Sutter co., about 12 m. in length by 6 in breadth, and containing perhaps 20 peaks; the highest of which, and the most interesting, is that on the N., which is a very steep cone, surmounted by a turret-shaped rock 56 feet high, and has an elevation of 2,488 feet. This commands an extensive view from the Coast range to the Sierra Nevada, and for perhaps 80 m. up and down the Sacramento. In Calaveras co. are 2 natural bridges across the Ohyote creek, near Vallecita—immense arches, their surface appearing as if carved into clusters of fruits and flowers, doubtless the result of volcanic action. The Ohyote cave, in the same locality, is entered by a perpendicular descent of 100 feet; thence it proceeds by a gradual slope to a depth of nearly 200 feet, where is a chamber containing 2 stones resembling bells, which, when struck, emit a chiming sound, whence the apartment has been named the Cathedral. Descending another slope of 100 feet, a lake is reached of great depth and apparently covering many acres, beyond which the cave has not been explored. The mammoth-tree groves, elsewhere mentioned, are entitled to be ranked among the most attractive of natural curiosities. From its great diversities of surface and general physical peculiarities, California presents innumerable examples of picturesque scenery and ob-

jects of interest to devotees of nature and of scientific research.—The industrial interests of the state, of course, centre in the gold mines, in which probably one-half the entire population are employed. In connection with this department of industry there is a branch of the U. S. mint at San Francisco, put in operation in April, 1854, at which there had been coined up to Jan. 1, 1857, \$58,266,737 in gold, and \$373,568 in silver, beside large amounts of both assayed and run into bars. There are several private establishments for the assaying and refining of gold and other metals, and the extraction of gold from the "tailings" of quartz, or such as, from the admixture of extraneous substances, cannot be reduced by amalgamation at the quartz mills. Manufacturing industry has hitherto been confined to those departments required by the more pressing local wants, but in some of these great enterprise and activity are being developed. During the first years of the settlement the neglect of agriculture necessitated an almost entire dependence on importation for bread-stuffs, and even vegetables, and the price of flour frequently ranged from \$20 to \$30 and \$40 per barrel. Already, however, the case has been reversed, and flour has become a staple export. There are 181 grist mills, 67 propelled by steam and 64 by water power, with 270 run of stone, erected at an estimated cost of \$2,400,000, and capable of producing 2,174,960 barrels of flour per annum, several times the quantity necessary for home consumption. The manufacture of lumber is also an important branch of industry and of commerce. There are 878 saw-mills, 171 propelled by steam and 202 by water; estimated cost, \$2,500,000; aggregate capacity, about 500,000,000 feet per annum. The most extensive lumber district is the vicinity of Humboldt bay, in the N. W., whence the export trade is mainly supplied. There are 14 iron foundries and machine shops, adapted to the manufacture of all kinds of steam and other machinery, and of a capacity to supply all demands; 18 tanneries; an extensive sugar refinery at San Francisco, employing 180 hands, and supplied with raw material by a special line of clipper barks from Manila, Batavia, and other Pacific ports; a cordage and oakum manufactory at the same place, on the largest scale; a large paper-mill in Marin co.; 4 large distilleries and 104 breweries, but most of the latter are small local establishments. The trade and travel between San Francisco and the interior are carried on by steamers of large size to Sacramento and Stockton, and by smaller ones beyond those points, all of which have been built in the state. Ocean ship-building is also beginning to be prosecuted to some extent at San Francisco. The U. S. government has a navy yard at Mare island, San Francisco bay, the only one on the Pacific coast, which, if completed on the scale projected, will cost \$15,000,000 or \$20,000,000, and be one of the most commodious in the world. It already affords conveniences for all necessary docking

and repairs both of the naval and merchant marine.—The commerce of California is mainly carried on through the port of San Francisco, which ranks as the 4th city in the Union in point of commercial importance. Its trade employs a large number of ocean steamers of from 900 to 3,000 tons burden, connecting with the Atlantic by railway via the isthmus of Panama, and by land and water transit through Nicaragua. Beside these steamers, multitudes of sailing vessels of all descriptions arrive and depart daily. In 1852 there arrived 718 vessels with a tonnage of 261,852, and cleared 906, tonnage 860,972, about  $\frac{1}{2}$  of which were foreign. The tonnage for the year ending June 30, 1857, was as follows: arrivals, domestic, 102,639 tons; foreign, 46,608—total, 149,247; departures, domestic, 212,834; foreign, 48,917—total, 262,751. Of American cities, only New York, Boston, and New Orleans exceeded this amount. Number of passengers arrived at San Francisco from April, 1849, to December, 1856, 860,118; excess of arrivals over departures from 1852 to 1856, 82,969. The foreign imports of 1856 amounted to \$9,155,501; duties, \$1,675,108. Total duties collected from 1848 to Dec. 31, 1856, 8 $\frac{1}{2}$  years, \$15,485,766. The exports of the chief articles of domestic produce, other than gold, in 1856, were as follows: flour, \$765,212; oats and barley, \$24,646 (1855, \$132,807); potatoes, \$1,292 (1855, \$26,719); wheat, \$66,870 (1855, \$92,686); tallow, \$67,661; lumber, \$48,818; quicksilver, \$796,898, &c.; total exports, \$1,782,608, not including a considerable amount of hides, of which the value is not returned, and a few minor articles.—But one railroad has yet been built, from Sacramento to Folsom, 22 $\frac{1}{2}$  miles, which was opened Feb. 22, 1856; cost of construction, \$1,200,000. This road has been eminently successful since its opening, and it is designed to extend it to several of the interior towns, arrangements being now in progress for a 'northern branch to Marysville or Oroville. Wagon roads have been constructed from Sacramento, Marysville, Stockton, &c., to the principal points in the mining region; that from Stockton connects with the military road from San Bernardino to Salt Lake City, a distance altogether of 1,100 miles. There are 2 lines of magnetic telegraph in operation, with an aggregate communication of 560 miles. The canals and ditches for mining purposes have been elsewhere mentioned. For a railroad connecting California directly with the Atlantic states, 5 or 6 different routes have been surveyed or explored, averaging over 2,000 m. in length, and varying in estimated cost from \$94,000,000 to \$170,000,000. Congress has made a liberal appropriation for the construction of two wagon roads adapted to the conveyance of mails and passengers, which are in progress, and a through mail is already in operation over the route terminating at San Diego. A through line of magnetic telegraph is also in immediate con-

temple.—A state lunatic asylum was established at Stockton, by act of the legislature, in 1853; the buildings are commodious and well arranged, with 100 acres of ground handsomely laid out; on the 1st of January, 1857, there were 172 patients—142 males and 30 females; expenditures for the year, \$180,746. There is a U. S. marine hospital at San Francisco, the building for which cost \$224,000, and is capable of accommodating 800 patients; number treated during 1856, 1,386, of whom 48 died, and 168 remained on Jan. 1, 1857; expenditures for the year, \$48,774. There is also a hospital fund provided by the state, which is apportioned to the different counties, and expended by the boards of supervisors for the support of the indigent sick; the expenditures from this fund for 4 years ending June 30, 1856, were \$1,066,462, of which \$141,168 was disbursed in the year 1855-'6; the supervisors are authorized, when necessary, to levy in addition a special local tax for the same purpose. The state prison is located at St. Quentin, Marin co., 12 miles from San Francisco; the number of convicts, Jan. 27, 1856, was 475. Of public libraries, that of the state at Sacramento has 11,000 volumes; Santa Clara college, San José, 10,000; mercantile association, San Francisco, 8,000; 10 others at San Francisco, 12,750; 5 in other places, 5,250, beside several whose numbers are not given.—Liberal provisions have been made for education, although the number of youth is, as yet, extremely small in comparison with other communities. In 1851 the legislature, in compliance with a provision of the constitution, passed an act establishing a system of public schools; but very few schools were established in the state previous to 1853, and even then, with a population of 800,000, there were only 53 public schools in the state. The following table will show the development of the system since that time:

Year.	Number of children.	Daily average attendance.	No. of schools.	No. of teachers.	Amount of state school fund distributed.
1853.....	11,252	—	58	56	58,511 11
'54.....	19,473	—	168	214	39,104 78
'55.....	26,077	6,422	227	301	52,827 81
'56.....	30,039	8,301	313	389	52,014 80
'57.....	35,722	9,717	357	426	53,590 88

In 1853, 16 of the 45 county superintendents in the state failed to report; in '54, 7; in '55, 3; in '56, 2; and in '57, only 1 failed to make returns. The 500,000 acres of land given to the state on her admission into the Union, for purposes of internal improvement, were transferred to the school fund. The 16th and 36th land sections (640 acres each) of every township granted by congress to support common schools amount to about 6,000,000 acres in the state, and with other special donations, including 72 sections for a state university, not yet organized, the school lands amount to 6,800,000 acres, or 10,635 sq. m. The formation of a school fund has been commenced by the sale

of about 233,000 acres of these lands, netting \$466,000, to be increased by the proceeds of the remainder as sold, which is invested in bonds of the civil funded debt of the state, bearing 7 per cent. interest. To the income of this fund is added  $\frac{1}{4}$  of the receipts from poll-taxes, and the proceeds (when there shall be any) of the sales of all escheated estates. In addition to these resources, the counties are authorized to levy a special tax, from which a considerable amount is raised. The amount appropriated for school purposes in 1856 was \$150,977 09, of which \$82,014 80 was from the state, and \$68,962 29 from the county funds. No public money is paid to denominational schools. In San Francisco, Sacramento, and several of the larger towns, the public schools are entirely free; but in other districts deficiencies in the public fund are made up by the patrons of the schools. A state superintendent of public schools is elected by the people for a term of three years, with whom are associated the governor and surveyor-general to form a state board of education. There are also county superintendents and district trustees. The enumeration of the children for school purposes includes those between the ages of 4 and 18 years. The salaries of male teachers in the public schools range from \$65 to \$180 per month, and of female teachers from \$50 to \$100 per month, the highest salaries being paid in San Francisco. The schools of San Francisco and Sacramento are said to be very good, while those in the mining districts are about equal to the common schools of the western states. There are many schools not supported by government, which are attended probably by 8,000 pupils during 10 months of the year. Among these schools, the most prominent are the Jesuit high school for boys in Santa Clara, and the seminaries for young ladies kept by the Catholic order of the sisters of mercy in San José and Benicia. There are 2 incorporated colleges in Santa Clara co., viz., the Santa Clara college, founded by the Jesuits in 1851, on the site of the old mission, with 113 pupils, and a library of 10,000 volumes, containing many rare and valuable works; and the university of the Pacific, founded by the Methodist Episcopal church in the same year, comprising male and female departments, with 90 students in the former and 50 in the latter. There are 120 newspapers and periodicals published in the state, of which 27 are issued daily, 72 weekly, 16 semi-monthly, 4 monthly, and 1 quarterly; of these, 7 are in foreign languages, 2 French, 2 German, and 2 Spanish; 32 are issued at San Francisco, 7 at Sacramento, 5 at Marysville, and 3 at Stockton; their aggregate annual issue is estimated at 18,350,000 sheets; 14 counties have no papers.—It is quite impossible to obtain full statistics of the various religious denominations and societies in California. There are a great many scattered churches which have no connection with other associa-

tions of the same kind, and there are several sects with a number of churches whose statistics have never been compiled by themselves. The attainable church statistics of the state are as follows:

Denominations.	Communicants.	Churches.	Clergy-men.
Methodist North.....	2,500	53	63
Methodist South.....	1,600	20	40
Presbyterian, Old School.....	1,000	15	17
Presbyterian, New School.....	500	11	13
Congregationalist.....	600	11	13
Baptist.....	1,000	42	30
Episcopalian.....	550	18	15
Unitarian.....	70	1	1
Total Protestant.....	7,820	176	180
Catholic.....	80,000	66	69
Hebrew.....	10,000	8	1
Total.....	97,820	245	250

The Cumberland Presbyterians and Campbellite Baptists have each a number of congregations in the state. The estimate of Catholics includes all who attend the Catholic churches and their children; and the estimate of the number of Hebrews includes all of Jewish blood, many of whom neglect the observances of their church. There is but 1 regularly ordained rabbi in the state, but a number occasionally officiate as such. It is estimated by intelligent residents of California that at least  $\frac{1}{4}$  of the population of the state are Protestant by education and sympathy, though not by church membership. The average attendance at the Protestant churches is said to be 5 or 6 times greater than the number of communicants; and the number of congregations who occasionally meet for worship far exceeds the number of church buildings. The Chinese, mentioned elsewhere, are nearly all Buddhists. The Indians, with very few exceptions, are destitute of any creed beyond a vague belief in the Great Spirit and unseen powers, and a profound reverence for their medicine men.—The constitution of California is similar in its general features to those of the older members of the confederacy, although differing from many of them in some of its details. By its provisions, all legal distinctions between individuals on religious grounds are prohibited; the utmost freedom of assembling, of speech, and of the press is secured, subject only to restraint for abuse, and in trials for libel proof of the truth of the charge and of good intentions is a bar to damages, the jury deciding upon the law and the fact; foreigners who are *bona fide* residents are secured the same rights in respect to property as native-born citizens; there is to be no imprisonment for debt, except in cases of fraud; slavery and involuntary servitude, except for crime, are expressly prohibited; wives are secured in their separate rights of property, independent of their husbands' control; a certain portion of the homestead and other property of heads of families is to be secured by law from forced sale. Among the restrictions on legislation are the following: No public debt shall be created exceeding at

any time the sum of \$300,000, except upon a specific vote of the people, and then within certain prescribed limits; no divorce shall be granted by the legislature; lotteries and the sale of lottery tickets shall not be allowed; corporations or joint-stock companies may be formed under general laws, but shall not be created by special acts, and the members thereof shall be individually liable for corporate debts; no charter for banking purposes shall be granted, and the circulation of paper money in any form is prohibited; the credit of the state shall not be loaned to any individual or corporation, nor shall the state directly or indirectly become a stockholder in any corporation. The right of suffrage is conferred on all citizens 21 years of age, not convicted of crime or idiotic, resident 6 months in the state and 30 days in the county or district. The legislative department consists of a senate elected for 2 years, and an assembly for 1, the former consisting at present of 33 and the latter of 80 members. All citizens resident 1 year in the state, and 6 months in the district, are eligible to membership. The executive department consists of a governor, lieutenant-governor, comptroller, treasurer, attorney-general, surveyor-general, and superintendent of public instruction, chosen by the people, the last for 8 and the others for 2 years, and a secretary of state appointed by the governor and legislature. The qualification of all for eligibility is an age of 25 years or over, and a citizenship and residence in the state of 2 years. The judiciary consists of a supreme court with 3 justices, elected by the people for 6 years, having appellate jurisdiction in civil cases where the amount in dispute exceeds \$200, in questions of the legality of taxes, &c., and in criminal cases amounting to felony; district courts (now 15 in number), with 1 judge each, elected for 6 years, having original jurisdiction in law and equity in civil cases where the amount exceeds \$200, and unlimited jurisdiction in all criminal cases not otherwise provided for, and in issues of fact joined in probate courts; county courts, consisting of 1 judge in each county, elected for 4 years, who performs the duties of surrogate or probate judge, and, with 2 justices of the peace, holds courts of special sessions; and such a number of justices of the peace in each county, town, city, or village, and with such powers, as the legislature may direct. Salaries are fixed as follows by act of April, 1856, being in most cases reductions from former rates: governor, \$6,000; comptroller, treasurer, superintendent of public instruction, and secretary of state, each \$3,500; surveyor-general and attorney-general, each \$2,000; supreme court judges, \$6,000; district judges, from \$3,000 to \$5,000; presiding officers of the legislature, \$12 per diem, members \$10 for the first 90 days and \$5 thereafter, and mileage at the rate of \$4 for every 20 miles travelled.—Revenue (exclusive of that for school purposes) is raised by taxation upon real and personal property, which yielded in 1856, \$655,315 45, at the rate of 70

cents on \$100, the total assessed valuation being \$95,007,440 97; by a poll-tax of \$3 on every resident between the ages of 21 and 50; and by a small license tax on merchants, bankers, places of amusement, foreign miners, &c. The receipts and disbursement of the state, from 1855 to 1857 inclusive, were as follows:

Year.	Receipts.	Disbursements.
1855.....	\$1,155,567 10.....	\$1,227,496 64
1856.....	723,239 53.....	1,663,634 81
1857.....	1,152,224 00.....	699,508 00

The receipts for 1857 were from the following sources: property tax, \$695,749 95; poll tax, \$75,037 43; foreign miners' licenses, \$154,660 58; trade licenses, &c., \$226,796 04. The debt of the state in March, 1858, was as follows:

Bonds of 1854, 8 per cent. interest with interest.....	\$4,838 95
" " 1854, 7 per cent. due 1860.....	150,000 00
" " 1852, " " " 1870.....	1,339,608 00
" " 1854, " " " 1870.....	700,000 00
" " 1854, " " " 1870.....	984,000 00
Indian war debt.....	313,020 81
Debt due by state to school fund.....	404,000 00
Outstanding comptroller's warrants.....	404,447 12
Total debt of the state.....	\$4,310,956 98

The state government commenced its functions under very unfavorable financial circumstances. The expenditures of every branch of the administration were enormous, and there was very little real property held under secure title, and a small permanent population from which to draw revenue. The consequence was resort to the credit system. The emission of paper money in the form of bonds and warrants, which could only be converted into cash at a heavy discount, considerably increased the expenditure of the government. The state constitution had provided that the legislature, after its first session, should create no debt greater than \$300,000 unless sanctioned by a popular vote of the people. None of the debts before mentioned were submitted to the people, and the supreme court decided in one case that the want of that authority for a debt created after 1850 rendered the legislation whereby it was created unconstitutional; and the court intimated that all the debts created after 1850 were illegal. In the autumn of 1857 the people by a popular vote decided that all the state debts should be paid, 57,661 voting in favor of payment, and 16,970 for repudiation. During the year 1857 the receipts into the treasury for the first time exceeded the disbursements, and on Jan. 1, 1858, there was a surplus of \$450,000 in the treasury. In addition to the state debt, the cities have outstanding bonds (in 1857) to the amount of \$5,668,903, and various counties \$2,365,260, which added to the debt of the state makes the whole public indebtedness of California \$12,163,090. The state owns the tide lands, being that portion covered by water from high-water mark to the channels of bays and rivers, and 8 m. into the ocean; also the swamp and overflowed lands of the state, amounting to about 5,000,000 acres.—The etymology of the name California, according to the annals of San Francisco, is uncertain; some writers have asserted that it comes from the

Latin words *calida* and *fornax*, Spanish *caliente fornalla*, a hot furnace—while others of high authority question this origin of the word. Other Latin derivations have also been suggested, but for the most part with little plausibility. It is probably a corruption of the original Indian name. The name California is first found in the writings of Bernal Diaz del Castillo, an officer who served under Cortes in the conquest of Mexico, and by him limited to a single bay on the coast. In some of the early English maps California is called New Albion, having been so named by Sir Francis Drake, who touched on the coast during one of his buccaneering expeditions in 1579. A century later it was called *Islas Carolinas* (supposed then to be an island), in honor of Charles II. of Spain; but subsequently the original name was revived and universally adopted. Lower or Old California was discovered as early as 1534 by Zimenes, a Spanish explorer; but the first settlements were made much later, in 1683, by the Jesuit missionaries. The precise date of the discovery of New or Upper California is uncertain; but it was subsequent to that of Old California, and the first mission (San Diego) was founded as late as 1769. Other missions and presidios were established in the following years, and the government of the country, both spiritual and temporal, was intrusted to certain monks of the order of St. Francis. The bay of San Francisco was discovered about 1770, and a mission was established there in 1776. In 1803, according to Humboldt, 18 missions had been established with 15,563 converts. Three more missions were subsequently established, and in 1831 the entire population is stated by Forbes in his history of Upper California at 23,025 (exclusive of unconverted Indians), of whom 13,638 were Indian converts. The same writer infers that for several years thereafter the population remained stationary. It seems to have been the policy of the ecclesiastical rulers to prevent the settlement of the country as far as possible, deeming such course best calculated to advance the object they had in view, viz., the conversion of the savages. The produce of the country in 1831 was, wheat 62,860 bushels, Indian corn 27,316, barley 18,512, beans and peas, 6,816, the entire crop being valued at \$86,284. Of domestic animals, there were 216,727 cattle, 32,201 horses, 3,021 mules and asses, 153,455 sheep, and 2,712 goats and swine. There were at the same time many wild cattle and horses in the country. At this date a good mule or saddle horse was worth \$10; a mare, cow, or fat ox, \$5; a sheep, \$2. The missions had been declining in wealth and power since 1824, in consequence of the interference of the Mexican government with the vested rights of the fathers, which finally resulted in the practical confiscation of the church property. The following statistics of the missions during the period of their greatest prosperity, are collected from the Rev. Calvin Colton's "Three Years in California":



Missions.	Cattle.	Horses.	Sheep.	Mules.	Hogs.	Merch's and Specie.
San Francisco	8,050	3,084	79,000	830	3,000	\$80,000
Dolores....	97,087	5,340	82,000	790	1,000	120,000
Santa Clara...	62,810	2,340	62,000	430	—	—
San José.....	44,512	6,280	69,580	—	—	25,000
San Juan	90,630	18,000	5,400	—	—	40,000
Bautista....	42,000	8,200	72,500	900	—	25,000
San Carlos...	36,300	6,000	70,000	—	—	—
Santa Cruz...	53,800	4,300	43,000	600	1,000	—
Soledad.....	91,340	4,100	47,000	2,000	—	—
San Antonio...	87,000	5,500	73,000	3,700	—	—
San Miguel...	40,800	6,600	80,000	—	5,000	—
Obispo.....	40,160	3,000	20,000	600	—	—
La Purissima	37,400	1,900	30,000	500	3,000	123,000
Santa Barbara	56,500	1,500	64,000	200	2,000	140,000
San Buena-	70,240	4,300	54,000	400	—	—
ventura.....	79,280	2,000	68,000	800	—	—
San Fernando						
San Gabriel...						
San Luis Rey						
Total.....	928,209	73,244	873,490	10,460	13,000	\$608,000

In addition to these missions, there were Santa Inez, possessing property valued at \$800,000, and San Juan Capistrano and San Diego, which were reputed to be among the most opulent of the missions. The Spanish power in California was overthrown by the Mexican revolution in 1822, and though the government of that country changed frequently, all administrations agreed in the policy of secularizing the government of California, and the fathers were finally stripped of their possessions and their former dignity and influence. The centralization of power at the federal capital, under the first administration of Santa Anna, caused a rebellion in California which resulted in the expulsion of the federal officials, and a declaration of independence on the part of the Californians; but in the following year, when the excitement had subsided, the people came back to their allegiance, and quietly submitted to the new order of things. The settlement of the country began to advance, particularly from the immigration of foreigners, the people of the United States being largely represented. In 1842, Com. Jones, of the U. S. navy, under the impression that the United States were at war with Mexico, took forcible possession of Monterey, hoisted the stars and stripes, and proclaimed California U. S. territory. Discovering his mistake the following day, he hauled down his flag, and made such apology as the circumstances would admit. During the years 1843, '44, '45, and '46 many thousands of emigrants from the United States settled in California; and while the country was rapidly becoming Americanized, in April, 1846, war was declared between Mexico and the United States; but before the news of this event had reached California, a quarrel arose between the Mexican officials and the American settlers, in which the Mexican commander attempted to expel the settlers from the country. This resulted in quite a general uprising of the Americans, a declaration of independence, and an active and energetic warfare against the Mexican authorities, which, under the lead of Col. John C. Fremont,

by a few rapid and bold movements, had nearly subdued the country, when, July 7, Com. Sloat, of the U. S. navy, arrived at Monterey, with intelligence of the declaration of war, and with assistance to the American cause. A few days later, Com. Stockton arrived with additional assistance, took command of the American forces, and at the head of about 800 men marched on the capital, Los Angeles, which he took without firing a gun. Gen. Castro with a greatly superior force having fled to Sonora on his approach. Stockton proclaimed California a territory of the United States, proceeded to establish a provisional government, and the country was apparently conquered; but the Mexican forces subsequently rallied under Gen. Flores, recaptured Los Angeles and Santa Barbara, which were not strongly garrisoned, and met with some other slight temporary successes. Stockton again collected his forces, and marched against Flores, whom he defeated, with very slight loss on the American side, in 2 battles, at Rio San Gabriel, Jan. 8, and on the plains of the Mesa, Jan. 9, 1847, which practically terminated the struggle for the mastery in California. The treaty of peace soon followed, by which California and certain other territory were ceded to the United States for the sum of \$15,000,000. At the close of hostilities the white population was estimated at 12,000 to 15,000. In the month of Feb. 1848, gold was discovered on the property of Col. Sutter, in Coloma county. The news spread rapidly. Men left their business of all kinds, and rushed to the locality of the new Ophir, and it was soon found that gold was widely distributed throughout the state. People flocked in from Mexico, from South America, from the Atlantic states, from Europe, and from China. The emigration was altogether unparalleled. In a very short time California contained a mixed population of nearly a quarter of a million of energetic, daring, reckless, and dangerous people. A substantial government became necessary. Gen. Riley, the military governor of the territory, called a convention of delegates, to meet at Monterey, Sept. 1, 1849, to frame a state constitution. The convention met, and after about 6 weeks' consideration, agreed on a constitution, which was submitted to the people, by whom it was adopted, and on Sept. 9, 1850, California was admitted into the union of American states by act of congress.—Gambling became almost a universal passion among the Californians. Whole squares were devoted exclusively to it in San Francisco, and it is said that as high as \$20,000 have been risked on the turn of a card, and \$5,000, \$3,000, \$2,000, and \$1,000 were repeatedly ventured; fortunes were lost and won in a few minutes with a coolness that amounted almost to indifference. Prices for all sorts of goods and services rose to fabulous figures. The smallest change used was quarter dollars, and no service was rendered for less than 50 cents. Admission to the circus ranged from \$3 for a seat in the pit, to \$55 for

a private box. Board was \$8 per day, or \$30 per week, the most indifferent being \$30. Flour and pork rose to \$40 per bbl., potatoes and brown sugar 37½ cents per lb., and other necessities in proportion; common coarse boots, \$30 to \$40 per pair, and superior high-topped boots, \$100. Laborers' wages were \$1 per hour, and skilled mechanics' from \$12 to \$30 per day. Lumber rose to \$500 per 1,000 feet. Rents were correspondingly high: a 2-story frame building, known as the Parker House, rented for \$120,000 per annum, ¼ of which was paid by gamblers, who occupied nearly the entire 2d story; \$3,000 per month was paid for a single store of limited dimensions, and rudely constructed of rough boards; the El Dorado, a canvas tent of moderate size, used for a gambling saloon, rented for \$40,000 per annum, and \$7,000 per month was paid by the government for a custom house. From 8 to 15 per cent. per month with real estate security was paid for money. People paid these enormous wages, rents, and interest, and still accumulated immense sums for themselves. Real estate rose enormously, and rapid fortunes were made by speculators in houses and lots. As a matter of course, among the emigrants to California were a large number of outlaws from all parts of the world, but mainly from Australia and the United States. In the earlier history of gold digging there were no efficient means for a proper administration of justice. Lynch law was resorted to in many parts of the country, and finally vigilance committees were established in the chief towns, by whom thieves and murderers were arrested, summarily tried, and if convicted, hung. In San Francisco, in 1851, crime in the forms of incendiarism, burglary, robbery, and murder, increased to such an alarming extent, that the public became impressed with the idea that the courts were the protection and refuge, instead of the terror of rogues, and a vigilance committee which had been previously formed took 2 men, M'Kenzie and Whittaker, from the city prison and hanged them in the street. For a time thereafter, crime appeared to be less rampant; but dreadful abuses prevailed in the city government, and finally, in 1855, Mr. King established the "Bulletin" newspaper, in which he criticized in severe terms the action of the city government, and commented particularly on the character of a man named Casey (who had served a term in the N. Y. state prison), a member of the board of supervisors, and whose influence over the political cancanes of his party was potent. He was charged with selling nominations for a price, and with furnishing bullies and ballot-box stuffers to elect his nominees; and also with procuring the passage of fraudulent bills through the board of which he was a member. On May 14, Casey murdered Mr. King by shooting him in the street, and then gave himself into the hands of the authorities. The vigilance committee, which had never been disbanded, was now put into active operation. The city prison

was strongly guarded till the 18th, when a formidable force from the committee demanded Casey, who was surrendered by the sheriff and taken to the cells of the committee. Charles Cora, a gambler, who had shot Mr. Richardson, the U. S. marshal, was also taken from the prison, and after trial on the 22d, they were both hung in front of the committee's rooms, the people and press of California very generally sustaining the proceeding. The vigilance committee had its constitution and appointed an executive committee, to whose supervision the general management was intrusted, and which performed its functions with the utmost quietness and dignity. One of the provisions of the constitution was, that no person brought before the committee should be punished without a fair trial and conviction. The committee provided itself with arms and ammunition, drilled its forces, fortified its head-quarters, constructed cells for prisoners and apartments for its various necessities. It arrested and tried rogues and dangerous men, some of whom were hung, some transported, and others acquitted.—A notorious person, called Yankee Sullivan, committed suicide while the committee were deliberating on his case. On June 2, a writ of *habeas corpus* was issued by Justice Terry, of the supreme court, for the rescue of Mulligan, a prisoner in the hands of the committee. No attention was paid to the writ, and on the following day Gov. Johnson proclaimed San Francisco in a state of insurrection, ordered out the militia of the city, and commanded the vigilance committee to disband and disperse. Very few of those opposed to the proceedings of the committee responded to the call, and practically the power of the state was, for the time, in the hands of the committee. The governor called on Gen. Wool for U. S. troops without success, and also on the president of the United States. In the mean time the committee continued their labors, banishing prisoners to the Atlantic states, to Australia, and the Pacific islands. On June 21, they captured a quantity of state arms in transit from Benicia to San Francisco, and intended for the use of the governor's militia. A force from the committee was sent to arrest a Mr. Maloney. He was found in company with Judge Terry, who opposed the arrest, and in so doing dangerously stabbed Mr. Hopkins, one of the committee's police. The judge was subsequently arrested by the committee and held a prisoner till the recovery of Mr. Hopkins, when he was released or tried and acquitted. A few weeks later the committee surrendered its power, having, during its extraordinary administration of public affairs, tried and disposed of some 80 cases brought before them; 4 of their prisoners were executed, 1 committed suicide while his case was under deliberation, and most of the others were banished from the state. The proceedings of the committee were attended with heavy expense, which was borne by voluntary contributions. The ensuing election resulted

in the choice of city and county officers favorable to the committee, and the city has been comparatively quiet and orderly ever since. A number of suits for damages have been commenced against members of the committee by certain parties who had been expelled.—The elastic energy and unconquerable enterprise of the people of California have been strikingly illustrated in the rise, progress, repeated destruction, and rapid resuscitation of her principal towns. In the earlier history of the gold fever, when the principal mercantile operations of California were conducted in canvas tents or rudely constructed wooden buildings, the chief towns were frequently destroyed by fire or flood, or both. Ere a month had passed after one of these destructive visitations, other buildings would take the places of those destroyed, and apparently all traces of the fire would be lost in the bustle and business activity of the town. San Francisco, the metropolis of California, has been six times nearly destroyed by fire. Sacramento, and other large towns, have also suffered in the same way. The total loss by fire in San Francisco alone has been estimated at \$20,000,000, yet the growth of that town is without a parallel on this continent.

**CALIFORNIA, GULF OF** (Sp., *Mar Bermejo*, or the Red sea), a gulf of the Pacific, which separates the peninsula of California from the Mexican states of Sonora and Oinaloa. It is about 700 miles in length, and from 40 to 100 in breadth. Its coast is indented with many small bays, and numerous islands stud its surface. The rivers Colorado and Gila discharge their waters into its upper extremity, and the villages of Loreto, La Paz, and Guaymas are situated on its shores. This gulf has been celebrated for its pearl fishery.

**CALIFORNIA, LOWER, or OLD** (Sp., *Baja*, or *Vieja California*), a department and peninsula of the Mexican republic, situated on the W. coast of North America, and having Upper or New California N., Sonora and the gulf of California E., and the Pacific ocean S. and W. It is about 750 miles in length, and from 80 to 150 miles in breadth. This region is of volcanic origin, and is traversed throughout by the Sierra Nevada range of mountains, which attains in some places to an elevation of nearly 5,000 feet above the level of the sea. These mountains are in general barren and desolate near their summits; but at their base, cactuses of extraordinary size are to be met with, and such of the valleys as have a sufficiency of water are of exuberant fertility. The climate is variable. The summer temperature on the coast of the Pacific ranges from 58° to 71°. The sky is remarkable for its transparency and deep azure color, save at sunset, when it is often variegated by the most beautiful shades of violet, purple, and green. In winter there is heavy rain and terrific tornadoes of wind, which sweep the soil from every exposed position into the sea, and force the cul-

tivator to seek a new locality. The principal vegetable productions of Lower California are maize, wheat, beans, peas, manioc, grapes, oranges, lemons, citrons, prunes, dates, plantains, and pineapples. The chief animals are wild sheep, goats, horses, horned cattle, mules, and pigs. The adjoining seas are stored with an abundance of excellent fish. There is a pearl fishery in the S. part of the gulf of California, which in 1851 employed 15 boats and produced pearls which were worth \$35,000. It is said that valuable gold mines abound in this peninsula. The chief towns are La Paz, the capital, and Loreto. Pop. in 1850, 12,000. Lower California was discovered by Fortunio Zimenes, in 1584. In 1688 the Jesuits formed establishments here, and instructed the natives in agriculture and the arts of civilization; but in 1767 they were expelled, and the destinies of California committed to the guardianship of the Dominican monks of the city of Mexico, who were very far from following in the footsteps of their predecessors.

**CALIGNY, JEAN ANTÉOR HUE DE**, a French engineer, member of a French family which has produced a great number of able engineers, born in 1657, died in 1731. He was present at the sieges of Valenciennes, Fribourg, Courtrai, Furnes, Dixmude, and eventually became director of the fortifications of Burgundy, where he superintended the construction of the canal of that name. During the bombardment of Calais by the English, he decided the issue of the battle by the 2 forts, Fort Rouge and Fort Vert, successively thrown up in such a manner as to arrest the progress of the hostile army. Again in 1706, after the battle of Ramillies, he frustrated the plans of Marlborough, by causing the two banks of the canals of Leffinghes and of Bruges to be inundated, although his own estates were the first to suffer from this inundation. He also constructed the great dam on the Aar, at Gravelines, and 8 forts with bastions at Furnes.

**CALIGULA, CAIUS CESAR AUGUSTUS GERMANICUS**, son of Germanicus and Agrippina, born in camp, it is supposed in Germany, A. D. 12, murdered in Rome, Jan. 24, 41. His nickname of Caligula, the use of which, in his latter years, he held a serious offence, came from the military boot or brogue, *caliga*, worn by the common legionary soldiers, which he was made to wear in his early childhood, for the purpose of conciliating the good will of the men, which, in fact, he retained to the last. After the murder of his father, by Piso and Plancina, and the exile and voluntary death of his mother, in the isle of Pandataria, he was brought up by his great-grandmother, Livia Augusta, until her death; when he was taken to the house of his grandmother, Antonia. Having escaped the fate of his mother and brothers, he ingratiated himself with Tiberius, who promoted him to offices of honor, and held out to him hopes of the succession. It was one of the earliest pleasures

of Caligula to be present at executions, and he became in his youth an amateur in the inspection of human agonies, as in his maturer years he was a curious and ingenious inventor of new torments. The death of Tiberius, A. D. 37, which was caused or accelerated by Caligula, brought him into power. By his testament, Tiberius had associated with Calus, in the empire Tiberius Gemellus, the son of the elder Drusus, his own son by Agrippina Vipsania, who had been poisoned by Sejanus; but on the pretext of his youth, Caligula procured that he should be set aside by the senate, although in every other respect he affected a profound respect for the will of the late emperor, even to the allowing the wretches who were lying under sentence of death in the dungeons, and who now expected the act of grace usual at a new accession, to be strangled. But for a time, the world had a moment in which to breathe freely. A foreign writer, not a native or inhabitant of Rome, has left a singular record of this brief epoch, so strangely contrasted with those which preceded and followed it. "The Greeks," he writes, "had no quarrels with barbarians, nor the soldiers with the citizens. Men could not sufficiently admire the incredible felicity of this young prince. He had immense riches; great forces, both by land and sea; prodigious revenues, coming in to him from all quarters of the world. The limits of his empire were no less than the Rhine and the Euphrates, beyond which there existed only savage populations, the Scythians, the Parthians, the Germans. Thus, from the rising of the sun to his setting, over the continent and in the isles, even beyond the sea, there was no sentiment but joy. Italy, Rome, Europe, Asia, held constant holiday. For under no other emperor had men tasted such repose, had they been permitted so tranquil an enjoyment of their own property. In all towns were to be seen altars, victims, sacrifices, men clad in white and crowned with flowers, games, concerts, festivals, dances, horse-races, revelry of all kinds. Rich and poor, noble and plebeian, debtor and creditor, master and slave, all partook of one common happiness, as if it had been a saturnalia." For 7 months this state of things continued, when, in consequence of debaucheries and excesses, the prince fell ill, and was like to die; and the Roman world, ignorant into what hands it would fall next, gave itself up to despair. All men put on mourning; they sat up all night long, and beset the palace gates for tidings. Men vowed their lives to redeem that of Caligula. There is much cause to believe that from this time forth he became, if he had not been one before, a madman. From his infancy he had been subject to epilepsy. Morally and physically, his nature was without balance or regulation; at one time undergoing the most extraordinary fatigues, at another scarcely able to support himself; confessing, at moments, that he was conscious of the germs of incipient madness, and considering

the propriety of secluding himself and taking hellebore. He scarcely slept 8 hours out of the 24; and, even during these, his slumbers were disturbed by frightful dreams and apparitions. He often passed whole nights in pacing up and down the vast porticoes of his palace, waiting the approach of day, and invoking it with passionate apostrophes; in all things, he was different, and differently organized, from other men. Immediately on his recovery, he threw off all restraint. We find him committing incest with his 3 sisters, Julia, Agrippina, and Drusilla; disgracing, impoverishing, banishing the 2 former, on her death deifying the latter, and then chuckling within himself in idiotic delight at the idea that he had got all his flatterers into a deadly dilemma; since they were equally guilty of impiety and worthy of death if they should mourn for Drusilla the woman, when Drusilla is a goddess, or rejoice at the deification of Drusilla, when Drusilla the woman is dead. We find him putting to death, in torture, the adulators, who had vowed their own lives for the restoration of his life, in order to teach them to keep their word with the gods. We find him, economically, giving the old gladiators to the beasts of the circus, for the twofold reason that meat is dear, and that supporting old gladiators is a needless expense to the state. We find him delighted at being able to convict the consuls of treason, in either case, whether they should or should not celebrate the victory of Actium; since, on his mother's side, he is of the family of Augustus, the victor; on his grandmother's, of that of the vanquished Antony. We find him building bridges from Baia to Puteoli, more than a league in length, the pontoons of which are all the corn fleet which supplied Rome with food, so that the city is furnished during the continuance of the fabric, the superstructure of which is a second Applan way, with taverns and wine shops on the wayside, and groves of timber trees to shade the passengers, and rivulets of fresh water, running far out to sea, to water the horses, and then, to crown the celebration, ordering the crowds who came to gaze upon the wonder to be thrown into the Mediterranean, and bewailing his bad luck because it is fine weather with a calm sea, so that most of these victims of his merry mood make their escape by swimming. Even in his more harmless pleasures, we find the same cynical and insane humor: removing the *velaria* from the amphitheatres, for the pleasure of seeing the whole people in an agony of heat and suffocation, under the fierce blaze of an Italian noontide; invading Germany, invading Britain, with innumerable armies and great fleets, in order to make the legionaries collect sea shells in their helmets, the spoils of the conquered ocean; and for want of German captives to exhibit at his triumph, having some unhappy Gauls, who were as much civilized men and citizens as himself, taught to speak German, and led through the streets with their hair, which had been let to grow long, dyed red, in

order to simulate prisoners of war, but not to simulate their fate, since that was real, for they were all scourged and beheaded, as if they had been genuine Germans. Lastly, we find him not only wishing that all the Roman people had but a single neck, that he might finish them all at one blow, but actually preparing to destroy half the senate, and more than half the equestrian order, when he was himself anticipated by the daggers of Cassius Chærea and his fellow-conspirators, who brought relief to Rome by murdering him 4 months after his return to the eternal city. Yet there were those who sincerely mourned him, and honored his remains. The prætorians regretted him, for he gave them gold and license and blood. The frivolous women and the dissipated young men of Rome regretted him, for he encouraged their debaucheries, gave them pageantries, games, shows of gladiators—in a word, something to do. What is strange is this, that the Jew Agrippa came at dead of night, to carry off the mortal relics of his master, at the risk of his own life, and give to them the rites of sepulture; that his sisters, Julia and Agrippina, whom he had outraged, compelled to infamy, and then disgraced for the infamy to which he had compelled them, immediately on their return from banishment, removed his remains to a more honorable sepulchre; that Milonia Cæsonia, his wife, who, neither young nor beautiful, exercised so strange a fascination over him, that he had threatened to put her to the rack in order to make her explain how she made him love her, remained in attendance on his corpse, covered with his blood, until the murderers returned, when she opened her bosom to their swords, bidding them to haste, in order that she might die with her husband. Cæsonia's request was granted, and she as well as the daughter she had borne to Caligula was put to death.

**CALIPH** (Arab. *Khalifa*), the title of the successors of Mohammed. There were 3 caliphates: 1st, the Oriental, first established at Mecca in 632, afterward at Damascus under the Ommyiades, and finally, till 1258, under the Abbassides at Bagdad; 2d, that of Cordova, founded in 756 by Abderrahman, a member of the family of the Ommyiades, which lasted until 1081; 3d, that of Egypt, or of the Fatimites, founded in 909 by Obeidallah, who pretended to be descended from the prophet's daughter, Fatima; it lasted until 1171, when it was overthrown by Saladin. The power of the caliphs of Bagdad was shaken in 934, when Rhadi assumed the office of *Emir al omra* (captain of the captains), with which the exercise of the absolute power, in the name of the caliph, was united. In Egypt, however, the caliphs maintained their spiritual authority until the conquest of that country by the Turks in the beginning of the 16th century. The Turkish sultans now assumed the dignity of caliph, and the grand seignior at Constantinople retains it to the present day, though his claim to spiritual authority is not

much regarded outside of Turkey. A new work on the caliphs, by Dr. Weil, is going through the press of Perthes in Gotha, and announced to be published in the course of 1868. The following table presents a chronological list of the successive caliphs, and of the close of their reigns:

1st. ORIENTAL CALIPH.			
(CALIPH OF ARABIA.)			
Abubekr.....	A. D. 632—634	Moktadi.....	1094
Omar I.....	644	Mortader.....	1113
Othman.....	655	Mostarabed.....	1125
Ali.....	661	Rashid.....	1135
Hasan.....	661	Mocafi.....	1149
(OMMYIADÆS.)		Mostanjed.....	1170
Moawylah I.....	661—680	Mostadhi.....	1180
Yezid I.....	680	Naser.....	1195
Moawylah II.....	680	Zaher.....	1225
Merwan I.....	684	Mostanser.....	1245
Abd el Malek.....	705	Mostasem.....	1259
Walid I.....	715	3d. CALIPH OF CORDOVA.	
Solyman.....	717	Abderrahman I.....	756—781
Omar II.....	720	Hashem I.....	786
Yezid II.....	724	Al Hakem I.....	821
Hashem.....	745	Abderrahman II.....	833
Walid II.....	744	Mohammed I.....	854
Yezid III.....	744	Almondhir.....	855
Ibrahim.....	744	Abdallah.....	893
Merwan II.....	750	Abderrahman III.....	941
(ABBASSIDÆS.)		Al Hakem II.....	976
Abul Abbas.....	750—754	Hashem II.....	1000
Abu Giafar, called Al		Mohammed Al Mahdi	
Mansoor (the victori-		(deposed).....	1000
ous).....	775	Solyman.....	1010
Mahdi.....	785	Mohammed (reflected).....	1013
Hadi.....	785	Hashem (reflected).....	1016
Haroun al Rashid.....	809	Hamud.....	1017
Amin.....	818	Abderrahman IV.....	1021
Al Mamun.....	833	Kasim.....	1021
Mostasem.....	841	Yahye.....	1023
Wathek.....	847	Abderrahman V.....	1023
Motawakel.....	861	Mohammed III.....	1024
Mostanser.....	861	Yahye (reflected).....	1025
Mostain.....	866	Hashem III.....	1031
Motas.....	869	3d. CALIPH OF EGYPT, or	
Moktadi.....	869	FATIMITES.	
Motamed.....	893	Obeidallah.....	909—935
Motadhed.....	893	Kasim Abul Kasim.....	943
Mocafi.....	903	Al Mansoor.....	953
Mortader.....	908	Moes.....	975
Kaher.....	923	Aziz.....	994
Rhadi.....	934	Hakem.....	1021
Motaki.....	940	Daher.....	1034
Mostakfi.....	944	Abu Tamin Mostanser.....	1034
Moti.....	974	Abul Kasim Mostali.....	1101
Tal.....	991	Abul Mansoor Amer.....	1130
Kader.....	1081	Hafed.....	1149
Kalm.....	1075	Dafer.....	1155
		Fayez.....	1160
		Adhed.....	1171

**CALIPPUS**, a Greek astronomer, born at Cyzicus, in the 4th century B. C. He went to Athens, and became associated with Aristotle, whom he assisted in rectifying and completing the discoveries of Eudoxus. Already several attempts had been made to express in entire numbers the 8 great natural unities of time, the solar year, the lunar month, and the solar day. A century before, Meton had discovered that 19 years corresponded to 235 months, or 6,940 days. Calippus observed that by this calculation there was an error of about  $\frac{1}{4}$  of a day each 19 years, which he proposed to avoid by quadrupling the cycle and reckoning it at 76 years, and omitting one entire day in each cycle. This period of 76 years was called the Calippic cycle, and was adopted by astronomers after the year 380 B. C.

**CALIXTINES** (from the Latin *calix*, calice). There are 2 sects in ecclesiastical history known by this name. I. Those who demanded the communion in both kinds for laymen.

These Calixtines were a branch of the Hussites, and are also called Utraquists. They were the more moderate of the 2 branches of the followers of that reformer, and were willing to compromise the remaining 8 of the 4 points which the Bohemian heretics had submitted, as the terms of reconciliation, at a council of Basel (Feb. 16, 1433). The 4 points were, 1, the use of the cup; 2, the free preaching of the word of God; 3, the abolition of clerical endowments; 4, the punishment by the civil magistrate of heinous transgressions and mortal sins. At an embassy held at Prague some time after, the Catholics introduced these 4 articles, so amended as that they could support them; but now the Bohemian reformers refused to accept them as amended. The Calixtines, however, attaching so much importance to the 1st of the 4 articles, consented to waive the other 3, in consideration of securing this. They were opposed by the Taborites or Orphans, who contended for all the 4. The event proved in favor of the Calixtines, for in the following year a decisive battle crushed the hopes of the Taborites, and thereafter the only distinction from the Catholic communion which the Hussite party enjoyed, was that for which the Calixtines contended. II. The other body known as Calixtines were the followers of George Calixtus, one of the reformers in the 16th century, the founder of the party called Syncretists. See CALIXTUS, GEORGE.

CALIXTUS, the name of 3 popes. The first, born in slavery, was bishop of Rome from 217 to 222, when he is said by some to have suffered martyrdom. II. Born near Besançon, died in Rome, March 18, 1124. His family name was Guido of Burgundy, and he was the 5th son of William, count of Burgundy, and related to the queen of France, the emperor of Germany, and the king of England. In 1096 he was already archbishop of Vienne, and he soon after went to France and England in the quality of papal legate, principally in order to settle the vexed question of lay investiture. In 1119, Gelasius II. died at the abbey of Cluny, and Calixtus was appointed to succeed him. He held councils at Toulouse and at Rheims, at the latter of which 427 bishops and abbots were present, while the emperor Henry V. was encamped in the vicinity, with 80,000 men. Nevertheless he was solemnly excommunicated by Calixtus, in presence of the council. Among other decrees of this council was one declaring the archbishop of York independent of the archbishop of Canterbury. After closing the council Calixtus went to Rome in 1120, where an anti-pope, named Gregory VIII., had established himself under the protection of the emperor; but Calixtus expelled him, and with the aid of the neighboring princes stormed the castle of Sutri, whither he had fled, and made him prisoner. He next attacked the Frangipani, and Cenci, broke their power, and threw down their castles. In 1121 and 1122 he sent

legates to Germany, a diet was held at Würzburg, and finally the *pactum Calixtinum*, or concordat of Worms, was concluded. Henry sent ambassadors to the pope, and in 1123 the first Lateran council was held, at which 800 bishops were present, and in this council Henry was absolved, and the question of investiture finally settled. The remainder of his life was spent by Calixtus in active labor for the good of the church and of his states; and he paid particular attention to the decoration of St. Peter's church, and repairing the aqueducts of Rome. III. (ALFONSO BORGIA), a member of the Spanish branch of the Borgia family, born at Valencia, was pope from 1455 until Aug. 6, 1458, when he died. After having received an excellent education, he was promoted to a canonry by the anti-pope Benedict XIII. (Peter de Luna), whose party was embraced by Alfonso V., king of Aragon. Having soon after been called to the royal council by the above-mentioned prince, he was sent by him to Benedict's successor, in order to induce him to abandon his pretensions; and having succeeded in this mission, he negotiated the reconciliation of his sovereign with Pope Martin V., and was rewarded by that pontiff with the archbishopric of Valencia. About 15 years afterward (1444), he was made cardinal by Eugenius IV., as a reward for essential services in negotiating a reconciliation between himself and Alfonso V. On April 8, 1455, he succeeded Nicholas V. on the papal throne. The ruling idea of his pontificate was the revival of the crusades against the Turks. He made the most energetic and persevering efforts to unite all the powers of Christendom in this undertaking, but without much success. This pope is said to have administered the government of the church with zeal and ability. The greatest fault which he committed was the elevation of his 2 unworthy nephews, Rodrigo Lenzuolo and Milo, to the dignity of cardinal, the former of whom became afterward pope under the name of Alexander VI.

CALIXTUS, GEORGE, properly CALIBSEN, a Lutheran divine, born at Meelby in Holstein, Dec. 14, 1586, died at Helmstadt, March 19, 1656. He studied successively at Helmstadt, Jena, Giessen, Tübingen, and Heidelberg. With a son of an opulent Dutch gentleman named Overbeck he made the tour of England and Germany, and by this means became acquainted with many of the leading reformers of those countries. The duke of Brunswick had, before his departure from the continent, been interested in the talents of Calixtus, by a discussion in which he had heard him engaged with a Jesuit. On his return the duke appointed him to a professorship in Helmstadt. Helmstadt was one of the original protesters against the "Form of Concord," that famous instrument drawn up in 1577, and always regarded as the Magna Charta of Lutheranism. Every thing in Helmstadt then readily fell under the suspicion of Calvinistic tendencies. Consequently, when Calixtus,

at the conference of Thorn (1645), showed himself so moderate in his Lutheran opinions as to favor and attempt the reconciliation of the Protestants and the Reformed church, he fell under the hatred of Calovius and his adherents, who insisted on his excommunication from the Lutheran church as suspected of Calvinism. Meanwhile, another party had just accused him of Catholicism, on account of one of his works, the "Epitome of Moral Theology." On the other hand, the Catholics regarded him as their most sagacious and insidious enemy. To sustain himself under this triple fire was no small task. He considered a union of the sundered body of Christ feasible, if the conflicting parties could be induced to return to the oecumenical councils and laws of the first 5 centuries. This plan gave rise to what is known in ecclesiastical history as Syncretism, though the followers of Calixtus are sometimes called Calixtines. These Calixtines, however, must not be confounded with the Hussite sect of the same name. He had embraced the Aristotelian philosophy, and that modified his treatment of the ethical system of Christianity. He was the first writer who attempted a truly scientific and philosophic symbol of Christianity. The Calixtine controversy continued long after his death, so that his influence on the theology of the succeeding age was greater than on that of his own.

**CALKING**, the process of driving tarred oakum into the seams between the planks of ships, in order to render the joints water-tight. A wisp of the oakum is drawn out and rolled together between the hands, and being laid over the seam, is driven by a wedge-shaped instrument, called the calking iron. The work is afterward gone over with a more powerful instrument of the same kind, which is held by one man and struck with a beetle held by another. When all the oakum is forced in that is practicable, the seams are payed over with melted pitch, and where they are to be covered with copper, a thread of spun yarn is laid in to make them flush with the planks.

**CALL OF BIRDS.** The call of the feathered races must not be confounded with their song, from which it is entirely and in all senses distinct. The former is their language, at all times, in all seasons, and is expressive, in so far as they can express them, of all their wants, passions, and desires, one alone excepted; the latter is occasional, limited to a single season of the year, when the bird is in a state of nature, limited to a single sex, the male, and expressive but of a single feeling, that of amorous desire. Many birds have no power of song; none, so far as it is yet ascertained, are without a call. Some, so far as it has been shown, have but a single call to express all their inclinations—although it may be doubted whether a more extended acquaintance with many of the wild tribes, whose distant haunts and secluded habits prevent the great enemy, man, from becoming familiar with their domestic and familiar ways, would not prove that the vocal qualities of all birds are

more extended in compass and more diversified than we are at first disposed to believe. Of many species of birds, the wild aquatic and semi-aquatic legions of the duck, goose, crane, plover, and sandpiper families, we know little in relation to their call beyond their passing cries, used as rallying notes or signals when on their voyages, or as alarm calls when startled by the approach of their enemies. A closer intimacy would, probably, teach us that even the most silent, in an ordinary sense, of the feathered races, have their sounds expressive of tenderness to their mates, of affection to their young, of alarm when the enemy is at hand, of gratulation on reassembling after absence, of invitation to partake in the food which is opportunely found, or of recall at the hour of roosting. Many birds, which are mute in the countries to which they migrate in the winter months, and have the reputation of being entirely voiceless, are clamorous when they breed, as is the case with the European woodcock (*scelopax rusticola*), and the jacksnipe, or juncok (*scelopax gallinula*), both of which are reputed dumb in the countries where they are shot, while in those where they breed they are known to have at least one note, and probably have many others, which are either never heard, never distinguished, or, if both, are assigned to others than those to which they belong, being uttered only in the seclusion of remote and solitary places, and addressed only to their young when in privacy, or to their mates when in the hour of courtship, or when sitting on their eggs, or caring for their tender broods. Some birds are known by their clang of tongues, as they sweep through the heavens in their migrations, clamoring in order to regulate their squadrons in the starless night, as wild geese, cranes, and many of the waders, which, when they are alarmed by the sportsman, rise voiceless and unheard, and feed in the daytime silent in the woods and wastes which they inhabit. Others fly silent, feed silent, and are, so far as we know, silent at all times, except when they spring upon the wing in any sudden alarm. Some again, as the passenger pigeons, make their migrations in silence, take wing in silence when alarmed, yet when alone in the woods, undisturbed and fearless, make the green solitudes sonorous with their conversations; others, like rooks, are at all times, especially in the breeding season, habitually noisy, yet rise in flocks without sound or signal. The song of all birds in a wild state is limited to the season of pairing, when the female, like the girl described by Moore in one of his poems, invariably "gives to song what gold could never buy," or while she is brooding hopefully on her eggs cheered by the love notes of the faithful lover, who recreates her patient labors with his voice, but ceases to sing when he, also, has cares paternal to fulfil. In some species which do not sing, there is an amatory call which answers the purpose of song, peculiar to the male bird during the season of the female's incubation, as the clear

double whistle of the American quail, the cry of the cuckoo, the cooing of the dove, the harsh creak of the landrail, and the *kek-kek-kek* of the male of the English snipe, as it is falsely called in the United States (*scelopax Wilsoni*), which is either wholly discontinued, or is changed into something wholly different, when the season and the desire for reproducing their species have passed away. As a general rule, aquatic fowl are more noisy than land birds, sea fowl than fresh-water birds, nocturnal than diurnal birds, domesticated fowls than those in a state of nature, birds which congregate than those of solitary habits, and, with the exception of common poultry, migratory birds, which pass much of their time on the wing, than those which dwell on the ground. No one of these rules, however, but is liable to numerous exceptions; for, while some sea birds, which congregate, are deafening in their clangor, they fly totally independent one of the other, not regulating their movements by signals of any kind; others, as many varieties of the *tringa* and *scelopacida*, and *charadriada* likewise, while they utter no sounds, yet wheel as regularly and orderly, in obedience to some concerted signal, as a well-disciplined regiment of horse. And, again, while some migratory birds are vociferous in the extreme, others are totally silent, and some non-migratory species, such as jackdaws and rooks, exceed all others in the propensity they exhibit for hearing their own unsweet voices. None, since the days of Canace—the owner of the virtuous ring, whose properties, as described by Chaucer,

Were these, that if she list it for to wear  
Upon her thumb, or in her pouch to bear,  
There is no foule that fleeth under heaven  
That she ne shalle understand his steven  
And know his meaning openly and plain,  
And answer him in his language again—

has pretended to possess the faculties of that gifted lady to their full extent; although the bagmen and fowlers of the Long island shores and Atlantic beaches have, at least, so far advanced in the path of her mysterious lore, that, whether or not they can understand the *steven*, or sound (for such being interpreted does that hard word signify) of every fowl that fleeth under heaven, and know his meaning openly and plain, they can in so far imitate their calls and hold converse with them, as they come and go, that the birds will turn on the wing to hear, "and answer them in their language again," and come down from the safe altitudes of cloud, or clear, to visit their treacherous decoys, and leave their plummy pinions, mowed down by their cruel volleys, to walter on the barren wave.—That amiable and delightful naturalist and writer, Gilbert White, of Selborne, than whom no one has done more, if any one so much, to divest the pursuit of the knowledge of nature of tedious and tiresome technicalities, to bring zoology within the range of the general reader and observer, and to render science agreeable, popular, and interesting to all classes of intellect, without ren-

dering it inexact, flippant, or vulgar, discourses charmingly on the call of many birds, which are familiar to all persons, how little given soever to ornithological or scientific pursuits. "From the motion of birds," he says, in one of his letters to the Hon. Daines Barrington, bearing date, Selborne, Sept. 9, 1778, "the transition is natural enough to their notes and language, of which I shall say something. Not that I would pretend to understand their language, like the vizier who, by the recital of a conversation which passed between 2 owls, reclaimed a sultan before delighting in conquest and devastation; but I would be thought only to mean that many of the winged tribes have various sounds and voices, adapted to express their various passions, wants, and feelings, such as anger, fear, love, hatred, hunger, and the like. All species are not equally eloquent; some are copious and fluent, as it were, in their utterance, while others are confined to a few important sounds; no bird, like the fish kind, is quite mute, though some are rather silent. The language of birds is very ancient, and like other ancient modes of speech, very elliptical; little is said, but much is meant and understood. The notes of the eagle kind are shrill and piercing, and, about the time of nidification, much diversified, as I have been assured by a curious observer of nature, who long resided at Gibraltar, where eagles abound. The notes of our hawks much resemble those of the king of birds. Owls have very expressive notes; they hoot in a fine vocal sound, much resembling the *vox humana*, and reducible by a pitch-pipe to a musical key." Elsewhere he says: "A neighbor of mine, who is said to have a nice ear, remarks that the owls about this village hoot in 8 different keys, in G flat or F sharp, in B flat and A flat. He heard 2 individuals hooting to each other, the one in A flat, and the other in B flat. Query: do these different notes proceed from different species, or only from various individuals?" "This note," he continues, in the letter first quoted, "seems to express rivalry and complacency among the males; they use also a quick call and a horrible scream, and can snore and hiss when they mean to menace. Ravens, beside their loud croak, can exert a deep and solemn note that makes the woods echo; the amorous sound of a crow is strange and ridiculous; rooks, in the breeding season, attempt sometimes in the gayety of their hearts to sing, but with no great success. The parrot kind have many modulations of voice, as appears by their aptitude to learn human sounds. Doves coo in an amorous and mournful manner, and are emblems of despairing lovers; the woodpecker sets up a sort of loud and hearty laugh; the fern owl, or goat-sucker, from the dusk to daylight serenades his mate with the chattering of castanets. All the tuneless *passeres* express their complacency by sweet modulations and a variety of melody. The swallow, as has been observed in a former letter, by a shrill alarm bespeaks the at-



tention of the other *hirundines*, and bids them beware that the hawk is at hand. Aquatic and gregarious birds, especially the nocturnal, that shift their quarters in the dark, are very noisy and loquacious, as cranes, wild geese, wild ducks, and the like; their perpetual clamor preventing them from dispersing and losing their companions. In so extensive a subject, sketches and outlines are as much as can be expected; for it would be endless to instance in all the infinite variety of the feathered nation. We shall, therefore, confine the remainder of this letter to the few domestic fowls of our yards, which are most known, and therefore best understood. And first, the peacock with his gorgeous train demands our attention; but like most gaudy birds, his notes are grating and shocking to the ear; the yelling of cats, the braying of an ass, are not more disgusting. The voice of the goose is trumpet-like and clanking, and one saved the capitol of Rome, as grave historians assert. The hiss also of the gander is formidable and full of menace, and 'protective of his young.' Among ducks, the sexual distinction of voice is remarkable; for while the quack of the female is loud and sonorous, the voice of the drake is inward, and harsh and feeble, and scarce discernible. The cock turkey struts and gobbles to his mistress, in a most uncouth manner; he hath also a pert and petulant note when he attacks his adversary. When a hen turkey leads forth her young brood, she keeps a watchful eye, and, if a bird of prey appear, though ever so high in the air, the careful mother announces the enemy with a little inward moan, and watches him with a steady and attentive look; but, if he approach, her note becomes earnest and alarmed, and her outcries are redoubled. No inhabitants of a yard seem possessed of such a variety of expression and so copious a language as common poultry. Take a chicken of 4 or 5 days old, and hold it at a window where there are flies, and it will immediately seize its prey with little twitterings of complacency; but if you tender it a wasp or a bee, at once its note becomes harsh and expressive of disapprobation and a sense of danger. When a pullet is ready to lay, she intimates the event by a joyous and easy soft note. Of all the events of their life, that of laying seems to them the most important; for no sooner has a hen disburdened herself than she rushes forth with a sort of clamorous joy, which the cock and the rest of his mistresses immediately adopt. The tumult is not confined to the family concerned, but catches from yard to yard, and spreads to every homestead within hearing, till at last the whole village is in an uproar. As soon as a hen becomes a mother, her new relation demands a new language; she then runs clucking and screaming about, and seems agitated, as if possessed. The father of the family has also a considerable vocabulary; if he finds food, he calls a favorite to share it; and if a bird of prey pass over, with a warning voice he

bids his family beware. The gallant chattering has at command his amorous phrases, and his tones of defiance. But the sound by which he is best known is his crowing; by this he has been distinguished in all ages as the countryman's clock or 'larum—as the watchman that proclaims the divisions of the night. Thus the poet elegantly styles him 'the crested clock, whose clarion sounds the silent hours.' A neighboring gentleman, one summer, had lost most of his chickens by a sparrow-hawk, that came gliding down between a fagot pile and the end of the house, to the place where his coops stood. The owner, inwardly vexed to see his flock thus diminishing, adroitly hung a setting net between the pile and the house, into which the catiff dashed and was entangled. Resentment suggested the law of retaliation; he therefore clipped the hawk's wings, cut off his talons, and fixing a cork on his bill, threw him down among the brood hens. Imagination cannot paint the scene that ensued; the expressions that fear, rage, and revenge inspired, were new, or at least, such as had been unnoticed before. The exasperated matrons upbraided, they execrated, they insulted, they triumphed. In a word, they never desisted from buffeting their adversary till they had torn him in a hundred pieces."

**CALLA**, a genus of plants, belonging to the *arum* family, marked by an open and spreading spathe, with a white upper surface, an oblong spadix entirely covered with flowers, heart-shaped leaves, red berries, and thick creeping root-stocks. The *C. palustris* is a native of marshy places in the north of Europe, and is common in cold bogs in the northern United States. Its seeds are surrounded with jelly. In Sweden its root is dried, and furnishes a kind of meal from which bread is made. The *C. Ethiopia* was introduced into England from the Cape of Good Hope, in 1781. It is also found wild in St. Helena. Its large spathe is pure white, surrounding a spadix which is colored deeply yellow by its antheriferous flowers. It is often cultivated, and is one of the most beautiful of aroidaceous plants. Being hardy, it will live in temperate regions, growing in great vigor in the ordinary apartments of a house, and may be made to blossom all the year round.

**CALLAN**, a municipal borough, market town, and parish, on King's river, co. of Kilkenny, Ireland. One-third of the inhabitants of the town are said to be without regular employment. It has been the scene of many battles, and in 1650 was taken by Cromwell. It gives the title of viscount to the Fielding family. Pop. 8,100.

**CALLANA**, or **CALANNA**, a town and district of Soodan, N. W. Africa. It is situated among the mountains of the Bataka range, a system which branches from the mountains of Kong, and terminates in the Sahara.

**CALLAO**, or **CALLAO DE LIMA**, a town of Peru, 6 miles W. of Lima, of which it is the port; pop. 7,000. The original town was en-

tirely demolished and submerged by an earthquake in 1746, and at low tides its ruins are still visible in the bay. The existing town consists only of low houses, slightly built, plastered with mud, and with their windows in the roof. Its commerce is considerable; lines of steamers connect it with Chili, Panama, &c.; the principal exports are bullion, cotton, soap, bark, and wool. Callao was the last stronghold of the Spaniards in South America.

**CALLAWAY.** I. A south-western county of Kentucky, on the west bank of the Tennessee river, here navigable by steamboats; area, 450 sq. m. Level and hilly grounds divide the surface almost equally. The soil, which possesses considerable fertility, produces tobacco, corn, and oats, and in 1850 yielded 405,785 bushels of Indian corn, 8,414 of wheat, 64,450 of oats, 957,381 lbs. of tobacco, and 18,637 of wool. There were 10 corn and flour mills, 6 saw mills, 2 tanneries, 24 churches, and 880 pupils attending public schools. Formed in 1821, and named in honor of Col. Richard Callaway, one of the early settlers of the state. Pop. in 1850, 8,096, of whom 992 were slaves. Capital, Murray. II. An eastern county of Missouri, bounded on the S. by the Missouri river, and having an area of 748 sq. m. The surface is moderately uneven, and about  $\frac{1}{4}$  of it is occupied by prairie land. The soil is uniformly fertile, and the staples are wheat, corn, oats, tobacco, hemp, horses, cattle, and mules. The productions in 1850 were 811,885 bushels of Indian corn, 50,178 of wheat, 184,418 of oats, 886,800 lbs. of tobacco, and 177,369 of butter. There were 36 corn and flour mills, 6 saw mills, 6 woollen factories, 1 newspaper office, 81 churches, and 1,717 pupils attending public schools. Coal, iron, limestone, and potter's clay are found in various places, and in large quantities. Organized in 1820. Pop. in 1856, 15,906, of whom 4,527 were slaves. Capital, Fulton.

**CALLCOTT, SIR AUGUSTUS WALL**, an English landscape painter, born at Kensington in 1779, died there, Nov. 25, 1844. His principal productions are "Returning from Market," "Waiting for the Passage Boat," "The Ferry," &c. In his well-known picture, "Harvest in the Highlands," the figures were painted by Landseer. His "Raphael and the Fornarina" was circulated by the London art-union among its subscribers in 1848, in an engraving by L. Stocks.—**JOHN WALL**, an English musical composer, brother of the preceding, born at Kensington in 1766, died in May, 1821, assisted in 1787 in forming the glee club, and excelled particularly in that branch of national music. The degree of doctor of music was conferred on him in 1790. In 1805 he published his "Musical Grammar," and his choicest compositions were brought out in 1824, after his death.—**MARIA**, born 1788, died 1842, was a daughter of Capt. Dundas, married to Capt. Graham, after whose death she married Sir Augustus Calcott. She published an account of her

travels in India, "Three Months in the Environs of Rome," "Memoirs of Poussin," &c. Her 2d husband turning her attention to the fine arts, she published in 1836 "Essays toward the History of Painting."

**CALLE, LA**, a seaport of Algeria, pop. 800, in the province of Constantine. It is built on a peninsula in the Mediterranean, and is the principal seat of the French coral fishery.

**CALLEJA, FELIX DEL REY**, conde de Calderon, a Spanish general, born in 1750, died about 1820, distinguished himself in Mexico by quelling the insurrection instigated in 1810 by Hidalgo, who was on the point of seizing the city of Mexico, when Calleja was charged by the viceroy Venegas to oppose his progress. After encounters, in which both parties strove to surpass each other in a display of cruelty and brutality, Calleja succeeded in defeating Hidalgo's army, and on Jan. 2, 1812, he took possession of the principal fortress Zitacuaro, and massacred the inhabitants. Hidalgo, who fell near Guadalajara, was succeeded by the priest Morelos, who defended Oauatla Amilpas against the attack of Calleja with great bravery until May 2, 1812, when famine forced him to surrender. Calleja again signalized his victory by acts of barbarism, and was rewarded for his zeal, March 4, 1813, by the appointment of viceroy, in which capacity he continued to alienate the feelings of the Mexicans by his relentless rigor. The priest Morelos fell into his hands and was shot, Dec. 22, 1815. Subsequently he promulgated an amnesty, but as he was unable to restore peace to the distracted country, he was recalled, Sept. 20, 1816. On his return to Spain he was created conde de Calderon, and in Jan. 1820, while preparing to sail from Cadiz against the revolutionists of Paraguay, his troops having mutinied, he was captured and remained prisoner in the fortress of the Isla de Leon until the insurrection was quelled by Ferdinand VII., when he died, soon after having recovered his liberty.

**CALLENDER, JAMES THOMPSON**, a political writer, born in Scotland, died at Richmond, Virginia, in July, 1808. For a long time he was editor of the "Richmond Recorder," and distinguished himself by his virulent attacks upon the administrations of Washington and Adams. He also published the "Prospect before us," "Political Progress of Britain," and "Sketches of American History." He was at one time a friend of Jefferson, but became his enemy and calumniator. He was drowned in the James river while bathing.

**CALLICRATIDAS**, a Spartan, succeeded Lysander, B. C. 406, in the command of the Lacedæmonian fleet against the Athenians, by whom he was defeated off the Arginusæ; and, thrown overboard in the action, he was drowned. Callicratidas was a Spartan to the core. When asked what sort of men the Ionians were, he replied, "Bad freemen, but excellent slaves."

**CALLIÈRES, FRANÇOIS DE**, a French diplomatist and author, born in Thorigny, in lower

Normandy, May 14, 1645, died in Paris, May 5, 1717. He was sent to Poland in 1672, for the purpose of advancing Longueville's claim to the Polish throne. He officiated as ambassador in Holland, and was present at the signing of the treaty of Ryswick, Sept. 20, 1697.

**CALLIMACHUS.** I. A Greek architect and statuary, supposed to have lived before 396 B. C., and said to have invented the Corinthian column. II. An Alexandrine grammarian and poet, born at Oxyene, in Africa, lived in the reigns of Ptolemy Philadelphus and Euergetes, and was chief librarian of the celebrated Alexandrian library, from 260 until 240 B. C., when he died. For some time he had kept a school at Alexandria, and numbered among his pupils Eratosthenes, Aristophanes of Byzantium, and Apollonius Rhodius. Only 6 hymns and 78 epigrams remain of his numerous writings.

**CALLINGER,** a strong British fortress in Bundelcund, Hindostan, built on the summit of a mountain 1,280 feet above the sea, is about 5 miles in circuit. After the British had taken possession of all the surrounding district, they were obliged to lay regular siege to this fortress, and took it with great difficulty and after many efforts, Feb. 28, 1812. In earlier times it had resisted sieges more than 10 years long.

**CALLINUS,** of Ephesus, the earliest Greek elegiac poet, lived about 700 B. C. One of his elegies consisting of 21 lines is extant, having been preserved by Stobæus.

**CALLIOPE,** in Greek mythology, the muse of epic poetry, named from the sweetness of her voice. She is represented in ancient art as bearing a tablet and stilus, waiting to record heroic deeds. She is particularly associated in the ancient statues with Homer.

**CALLIOPE,** a steam musical instrument, invented by Mr. Joshua C. Stoddard, of Worcester, Mass. Valve chambers are arranged along the top of a steam chest or cylinder, each one furnished with a double metallic valve, seated steam-tight without packing. A small stem passes from each of the valves through the chamber to the outside, by which the valve may by slight pressure be opened; the pressure taken off, it instantly closes. Over each valve is a steam whistle, each having its own tone. A cylinder with cogs, like that of a music box, is so placed as to lift the valves as it revolves, and thus produce tunes. By recent improvements the tunes may be played by striking keys similar to those of a piano.

**CALLIPHON,** a Greek Epicurean or rather eclectic philosopher, who taught that the highest good of man consists in a union of virtue and bodily pleasure.

**CALLIRRHOE,** a fountain near Athens, called also Enneacrunus, because its waters were distributed by 9 channels. It still bears its ancient name.

**CALLISTEIA,** festivals among the ancient Greeks at which the prize of beauty was adjudged to the fairest. One of these contests was held by the Lesbian women in the temple

of Juno on their island; another formed a part of the festival celebrated by the Parrhasians in Arcadia, in honor of Ceres Eleusinia; and a 3d occurred among the Eleans. In the last, however, only men contended; and the most beautiful man received a suit of armor which he dedicated to Minerva, and on his way to the temple was encompassed by his friends and adorned with ribbons and a myrtle wreath.

**CALLISTHENES,** of Olynthus, a pupil and relation of Aristotle, by whose recommendation he accompanied Alexander the Great to Asia. He often expressed disapprobation to Alexander, and at length, when the conqueror had adopted the pomp and the humiliating ceremonial of the Persian court, Callisthenes not only freely uttered his own indignation, but excited displeasure among the soldiers. He was put to death by command of Alexander. Of the several histories which he wrote, no one has come down to us; but one of the most popular of the mediæval romances, filled with traditions and fancies concerning the oriental life of Alexander, has been attributed to him.

**CALLISTHENIOS** (Gr. *καλλος*, beauty, *σθένος*, strength), a system of exercises which has for its object the development of physical grace and vigor. The callisthenic exercises, requiring less violence of muscular action than the ordinary gymnastics, are considered to be better adapted to the more delicate organization of females, and are generally confined in their application to that sex. Their purpose is to give equal development to all the voluntary muscles, and thus produce that harmony of action on which depends not only health, but regularity of proportion and grace of movement. Callisthenics may be practised mediately or immediately, with or without apparatus. All the apparatus required, when used, is a strong chair, a short roller fixed in sockets near the top of an open doorway, a light wooden staff, about 4½ feet in length and ½ an inch in diameter, a pair of light dumb bells, a hair mattress, a couple of square weights, and 2 parallel bars. The exercises with these are simple, and can be readily learned in a lesson or two from a teacher, or, in fact, from any of the numerous manuals published on the subject. They are difficult to describe, however, without the aid of diagrams. In the chair exercise, the pupil plants her feet at some distance, and then leans forward on tiptoe, and rests her hands upon the back of the chair. The exercise consists in moving the body slowly backward and forward between the two fixed points of the toes on the floor and the hands on the back of the chair. This simple manœuvre is admirably adapted for the expansion of the chest, and the development of all the muscles of the trunk of the body. In the roller exercise the pupil suspends herself by her hands a few inches above the floor, and swings in this position, or moves her grasp alternately from side to side. This, however, is an exercise which, however favorable to strength, will not be considered so con-

ducive to beauty by those fair dames who value the hand of luxury, with its soft and lily-white texture, more than the hard palm of utility. A great number of graceful and strengthening movements may be made with the staff. One of the best is to hold it in both hands, and pass it successively over the head to the right and left, bringing it down each time below the middle of the person, in front or behind. The dumb bells, being grasped by the hands, are to be moved forward and backward horizontally from the chest, or with the arms below the hips, to be moved circularly about the body, until they meet before and behind. The exercise on the mattress consists merely in raising the person from a horizontal to a sitting posture, while the arms and legs are extended, and not used to aid in the movement. The square weights may be used in most cases like the dumb bells. They have, however, the peculiar advantage of a form which allows of their being placed upon the head. This is one of the best possible means of giving uprightness to the figure, as in thus balancing a weight, the spine is necessarily brought by the muscles of the back into a straight position. The negro women of the South, who are in the habit of carrying heavy burdens on their head, are remarkable for erectness of body. The parallel bars are 2 poles fastened at their ends to the floor and the ceiling, at a proper distance apart, and of a thickness to be readily grasped by the hands of the pupil, which being done, she moves the body backward and forward between them. Every necessary exercise, however, can be practised without the use of apparatus of any kind, and the system of callisthenics founded on this basis is probably best for general adoption, as less liable to abuse from the intemperate zeal of the pupil, and more calculated to preserve the *το κάλον*, the beautiful, which few women will be persuaded to exchange for any acquisition of *σθένος*, strength. When apparatus is used, the effort is more violent, and the muscles may become so prominently developed as to cause the absorption of the soft cellular tissue which cushions the human frame, and which, by its abundance in the female, gives that beautiful and distinctive roundness and fulness to her form. The constant handling of the hard material of the apparatus, also, is apt to produce not only a disproportionate enlargement of the hand, but so to coarsen its texture, that most of our fashionable ladies would consider health, bought at such a price, a dear purchase. The callisthenic exercises without apparatus consist in regular and systematic movements of the whole body. The head and the trunk are moved up and down, forward and backward, to the right and left; the arms and legs, and hands and feet, are also so exercised that every voluntary muscle is brought into action. The object being to give an equal muscular development to the whole frame, the exercises are so arranged that each part of the body has its share in turn. None of the movements are

complicated, and, in fact, are no more than those usual in the ordinary exercise of our limbs. Callisthenics, however, by reducing these to a system, insure an equal and regular action of the muscles, while the occupations or amusements of females are apt to effect the reverse, and thus cause both distortion and ill health. It is essential that all these exercises should be practised, if in-doors, in well-ventilated halls or apartments; for without pure air, great muscular activity is more conducive to disease than health.—The practical utility of all gymnastics is much interfered with by the early weariness of the pupil with the uniformity of the movements. Without the discipline of a teacher, it is difficult to secure a long persistence in the exercises. It is well, therefore, to vary them, or to associate with them as much as possible the idea of amusement. In fact, there is no better callisthenic apparatus than many of the ordinary playthings, such as the battledoor and shuttlecock, the cup and ball, and the "graces." Horseback exercise, which is now confined to the opulent, ought, as it might economically, to be introduced into every school; and swimming, which is almost entirely neglected by the female sex—everywhere except in the Sandwich islands, where it is now, however, fast disappearing before a civilization, barbarous at least in this respect—should be taught to every girl, and practised universally. Ling, the Swedish writer on gymnastics and callisthenics, has written enthusiastically upon the advantage of systematic muscular exercise in the cure of disease. Many of those ailments to which females are peculiarly liable are owing to the neglect of proper physical training, and may be cured, doubtless, by the proper application of callisthenics. Most of these female disorders may be justly attributed to the weakness of the abdominal muscles, and a proper strengthening of them by exercise would, no doubt, remove the cause.

CALLISTO, an Arcadian nymph, a companion of Diana in the chase, beloved by Jupiter, to whom she bore a son Arcas. To conceal the amour, Jupiter metamorphosed her into a she bear. Juno discovered the truth, and caused Diana to shoot the bear. Jupiter placed Callisto, under the name of Arctos, among the stars.

CALLISTRATUS, the Athenian orator by whose eloquence Demosthenes was so impressed that he abandoned the study of philosophy, and determined to devote himself to oratory. He was banished in the year 361 B. C., and upon his return to the city was put to death.

CALLON, one of the earliest Greek sculptors, a native of the island of Ægina, lived about the year 516 B. C. His statues were wrought in marble, bronze, and wood.

CALLOT, JACQUES, a French engraver, born in 1592 at Nancy, died there in 1635. His early passion for art was opposed by his father, who was the herald-at-arms of the duchy of Lorraine. Jacques made his escape to Florence, where he entered the studio of Remigio Cantu Gallina. He was, however, compelled to return

home, only to escape again. But again he was brought back to Nancy by his oldest brother, who lay in ambush for him at Turin. Finally, his father yielded to his desire; he resumed his studies in Italy, and eventually acquired great celebrity as an engraver. He executed over 1,500 plates, and made himself very popular by etchings which illustrated the life and manners of the people. He excelled also as a painter, but his universal reputation depends mainly on his engravings of the temptation of St. Anthony, his fairs of Nancy, his battles and sieges, his punishments, and a few others.

**CALLUS**, any preternatural hardness in the body, particularly of the skin, as on the hands or feet, from friction or pressure. The hardened edges of a wound or ulcer are also termed callus; but the most common application of the word is to the new growth of osseous matter around and between the extremities of fractured bones, serving to unite them. The mode of reparation is attended by the following changes: 1. Extravasation of blood where the bone is fractured. After this is absorbed, liquor sanguinis is effused, and assumes the position which the blood had occupied. 2. This consolidates, and the watery portion being absorbed, the rest becomes organized. 3. This period of plastic exudation lasts 8 or 10 days, and then becomes quasi-cartilaginous. 4. This mass contracts, increases in density, and gradually becomes what is commonly termed bone, but it is not true bone, though very hard and strong. 5. The ossification or solidification advances from the periphery, and the fractured extremities are now surrounded by a bony case termed the provisional callus. 6. After this is formed, continuity is truly restored by the formation of what is called definitive callus or true bone, which takes place between the fractured extremities. 7. Finally, the provisional callus is absorbed and disappears. It was formed merely to serve as a natural case or splint to maintain the broken extremities in their position, while the osseous reparation was proceeding to restore the natural unity and continuity of structure. The provisional callus is not true bone, but a hard substance resembling ivory or bony structure.

**CALLY, PIERRE**, a French theologian, born near Argentan, about the middle of the 17th century, died Dec. 31, 1709. He was the first person in France who accepted fully the philosophy of Descartes, for which he was exiled for 12 years to Moulins. He published several works upon philosophical and theological topics, and also edited the *De Philosophia Consolationes* of Boëthius.

**CALMAR**, or **KALMAR**, a seaport town of Sweden, pop. 5,346, on the strait separating the island of Oeland from the continent, 190 miles S. S. W. from Stockholm. Here, in 1397, was concluded the treaty known as the "Union of Calmar," which united the 3 kingdoms of Sweden, Denmark, and Norway under Margaret, daughter of Waldemar III. Here also, in 1520, Gustavus Vasa disembarked to put a final end to

the union. Louis XVIII., during his exile from France, resided at Calmar in 1804, and erected there a tablet in honor of Gustavus.

**CALMET**, **AUGUSTIN**, a French scholar and Benedictine of the congregation of St. Vannes, born Feb. 26, 1672, died in Paris, Oct. 20, 1757. He began to study theology in the priory of Breuil, but learned Hebrew under Faber, a Lutheran divine. In 1698 he was appointed to instruct the younger monks of Moven-Montier in theology; in 1704 he became director of the abbey of Munster, where he expounded the Scriptures; and he passed thence to the abbey of St. Léopold, near Nancy, in 1711, and to that of Sémonen in Lorraine in 1728. He was actively engaged in his duties till his death, honored by all for his piety and simplicity, and held in regard even by Voltaire. He devoted himself laboriously to archaeological, historical, and theological studies, and left many learned works, among which is his celebrated "Dictionary of the Bible."

**CALMUOKS**, the most numerous and celebrated people of the Mongol race, inhabiting parts of Asia and eastern Europe, and belonging to the empires of China and Russia. They were formerly called the *Eloutes*; the Tartars call them *Khalimik*, or apostates; and they call themselves *Derben Eret*, or the 4 allies. They are divided into 4 principal hordes: the Khokhota, numbering 40,000 families, who inhabit eastern Thibet and the environs of Koko Nor, which they regard as their native seat; the Dzoungares, or Soongars, giving their name to the country Soongaria, having from 20,000 to 80,000 families, and formerly the richest and most powerful of the hordes; the Derbeta, or Tchoros, who migrated from Soongaria in 1631, established themselves on the upper Tobol, became vassals of Russia, and during the last century took possession of the steppe between the Don and the Volga, where they now form 15,000 families, and are associated with the Cossacks of the Don; and the Torgota, or primitive tribe of Soongaria, who migrated to the Volga to the number of 55,000 families in 1662, but in consequence of vexations received from Russian agents, returned in 1771 to the banks of the Emba. The Calmucks are described as one of the ugliest in appearance of all the tribes of men. They are small and thin, with brown complexion, round faces, piercing eyes set near together, thick lips, wide nostrils, projecting cheek bones, large and prominent ears, and black, thick, and bristling hair, which is shaved from the greater part of the head. Their ugliness is their title to purity of race. They are descendants of the Scythian barbarians of antiquity, and of the Huns who under Attila terrified the southern nations of Europe as much by their hideous aspect as by their ferocity. They are clothed, but intelligent, curious, violent, and deceitful, though hospitable. They have extraordinary delicacy of sense, especially of sight, and their memory is such that many of them know by heart the songs of their bards and long passages from their sacred books and

national epic. They are nomadic, dwelling in conical tents, which they arrange in straight lines like the streets of a town. Their costume usually consists of small kid boots, short trousers, a jacket with narrow sleeves, and a large cloak. Their arms are the bow and arrow, the lance, and sometimes guns, scymitars, and pistols. They devote themselves to the chase and to fishing, and their principal riches consist in horses and sheep. They are almost always on horseback, and have bow-legs, with their feet turned toward each other. In war they make their expeditions by night, attack suddenly and massacre their enemies, and retreat with booty. Their ancient religion is Lamaism, though they have generally embraced Buddhism, and a few isolated branches of them have been converted to Christianity or Mohammedanism. Their priests, or *ghilangs*, exercise great influence among them, but their oppressions have been much diminished in the Russian possessions by several ukases of the czar. Russia founded, in 1829, a special school for the education of interpreters and functionaries among the Calmucks.

**CALOMARDE**, or **CALOMARDA**, FRANCISCO TADDO, count of, a Spanish statesman, born in 1775 at Vilhel, in Aragon, died in Toulouse, France, in 1842. He was employed in the office of the minister of justice, and was made chief of this department during the time when the central junta, in order to escape from the sway of Napoleon, sat at Seville, and afterward at Oadiz. In 1814, on the return of Ferdinand VII., Calomarde was made chief secretary of the department of Indian affairs. Here he was convicted of bribery, and banished to Toledo, and afterward to Pamplona. In 1823 he received the appointment of secretary to the regency, and subsequently an important office in the royal household, in addition to which he was appointed minister of justice. He organized the corps of royalist volunteers, who proved efficient auxiliaries to the crown, recalled the Jesuits, reopened the convents, and closed the universities. In 1832, when Ferdinand's death was supposed to have taken place, Calomarde was the first to bend his knee before Don Carlos. The king recovered from the illness which for a time had threatened his life, but lingered in a semi-idiotic condition: of this Calomarde took advantage, by extorting from him his signature to the act of Dec. 31, 1832, in which Ferdinand abdicated in favor of Don Carlos. When Ferdinand revealed this fraudulent proceeding, Calomarde was expelled from the capital, and banished to his seat in Aragon, and only escaped imprisonment, to which a short time afterward he was condemned, by escaping to France in disguise. Here he passed the rest of his days in obscurity.

**CALOMEL**. Mercury combines with chlorine in 2 proportions, forming the subchloride or calomel, and the protochloride or corrosive sublimate, the one consisting of 1 equivalent of chlorine and 2 of mercury, Hg<sub>2</sub> Cl<sub>2</sub>, and the

other of 1 equivalent of chlorine and 1 of mercury, Hg. Cl. The name calomel is probably derived from the Greek words *kalos*, fair, and *melas*, black; a black mixture being produced in the process of preparing it by rubbing mercury with corrosive sublimate, and this, when subjected to heat, yielding the white sublimate calomel. It occurs as an ore of mercury, which is called horn-quicksilver, found in the quicksilver mines of Adria in Carniola, Almaden in Spain, and other localities. It is in the form of a crystalline sublimation, coating other substances, and of granular structure. It is also crystallized in quadrangular prisms, of yellowish gray and ash-gray colors. Its hardness is 1-2, and specific gravity 6.482.—As prepared for medicinal purposes, calomel is either obtained as a powder by precipitation, or is reduced to a powdered state from the crystalline cake obtained by sublimation. It is a substance without taste or smell, insoluble in water, ether, and alcohol, and becomes black by exposure, without undergoing chemical change. For this reason it is necessary to keep it protected from the light. It requires a higher temperature than corrosive sublimate to volatilize it, and in the sublimation a portion is converted into mercury and the protochloride. By its entirely subliming when pure, non-volatile substances that may have been mixed with it, such as salts of lime, barytes, or lead, may be detected. As calomel is liable to be contaminated with corrosive sublimate, by which mixture it may produce the most dangerous consequences, it is especially important to test it for this salt. A buff color is an indication of freedom from corrosive sublimate, but the very purest calomel, as that called Jewell's, is perfectly white. If calomel is washed in warm distilled water, and a white precipitate should fall on the addition of ammonia, this indicates the presence of corrosive sublimate. Caustic potash may also be used instead of ammonia, and will give when corrosive sublimate is present a yellow precipitate.—Various processes are given in the pharmacopias for this preparation. The most common method is by sublimation. This may be done by mixing 4 parts of corrosive sublimate with 8 parts of mercury, and rubbing them together until the metallic globules entirely disappear, and then subliming. The product should be powdered and washed with boiling water to free it from corrosive sublimate. The process of the "U. S. Pharmacopoeia" is as follows: "Take of mercury 4 lbs., sulphuric acid 8 lbs., chloride of sodium 1½ lb., distilled water a sufficient quantity. Boil 2 lbs. of the mercury with the sulphuric acid until a dry, white mass is left. Rub this, when cold, with the remainder of the mercury in an earthenware mortar, until they are thoroughly mixed; then add the chloride of sodium, and rub it with the other ingredients till all the globules disappear; afterward sublime. Reduce the sublimed matter to a very fine powder, and wash it frequently with boiling distilled water, till the washings afford no

precipitate upon the addition of solution of ammonia; then dry it." A mode of preparation in the wet way is recommended by Professor Wheeler in the "Chemical Gazette" of July, 1854. The commercial corrosive sublimate is dissolved in water heated to 122° F., and sulphurous acid gas, obtained by heating coarse charcoal powder with concentrated sulphuric acid, is passed through the hot saturated solution. Calomel in the form of a delicate powder and of a dazzling whiteness, which glistens in the sunlight, is precipitated. The liquid, when saturated with the gas, is digested for a time, and when cooled is filtered from the calomel, which is afterward washed. This process has the advantage that it is easily available for making calomel in small quantities. The calomel of Mr. Joseph Jewell of London, sometimes called Howard's, which possesses the highest reputation, is prepared by causing the vapor to come in contact with steam in a large receiver. It is thus entirely washed from corrosive sublimate, at the same time that it is condensed into an impalpable powder. Its extreme fineness appears to give it more activity as a medicine than is possessed by the calomel obtained by levigation and elutriation.—In the use of calomel as a medicine, particular attention should be given to its liability to generate corrosive sublimate by decomposition. This effect may be produced by bitter almonds or cherry-laurel water, or any other substance containing hydrocyanic acid, being administered simultaneously with it. Nitro-muriatic acid produces the same effects, as also, to some degree, the chlorides of potassium, sodium, and ammonium. It is rendered ineffectual by the alkalies and alkaline earths. Calomel is regarded as the most valuable of the mercurial preparations, though the homœopaths and some other medical innovators reject it. It is employed as a purgative, operating chiefly upon the liver by stimulating its secretory functions. Being slow in its action, and liable to salivate if too long retained, it is usually administered with some other cathartic. It is also given as a remedy for worms, and as an alternative in derangement of the liver in small doses administered once in 24 or 48 hours. In yellow and malignant bilious fevers, violent dysentery, and malignant cholera, it has been effectually administered in repeated doses of 20 grains or more each. This use of it is much approved in hot climates, though not so well adapted to colder latitudes.

**CALONNE**, CHARLES ALEXANDRE DE, a French statesman, born in 1734, at Douay, died Oct. 30, 1802, in Paris. Belonging to a good family he was appointed to several judicial offices, in which he gave evidence of quickness of mind, boldness of conduct, and easy conscience. This became especially apparent in the prosecution against La Chalotais, attorney-general of Brittany, in which he played a part neither just nor honorable. But he had meanwhile secured the favor of influential persons, such as the count of Vergennes, secretary for foreign affairs, and

ingratiated himself with the second brother of the king, the count of Artois. He had impressed them with such a high opinion of his political talent and financial capacity, that they judged him the only man able to overcome the difficulties which Necker himself had only succeeded in postponing. He was consequently, in 1788, appointed comptroller-general of finance. His first acts seemed fully to justify the anticipations of his protectors; money was abundant in the treasury; Calonne showed himself ready to gratify the most extravagant wishes of the queen and the princes; no comptroller had ever been so popular among the courtiers; and consequently none was reputed so skilful. But this seeming prosperity had been procured, not by fostering true wealth in the nation, but by the dexterous management of extraordinary resources, the frequent and at first successful negotiation of loans, and the exhaustion of all branches of the revenue. Such a system, the only consequence of which was to increase the deficit at a fearful rate, could not last long. The hour of reckoning came. Calonne, being at his wit's end, resolved to adopt the desperate means of summoning an assembly of notables. The session opened Feb. 2, 1787; the comptroller came out with his wonted boldness, unravelled the difficulties of the situation, acknowledging that within the last few years the loans had amounted to 1,250,000,000 livres, while the annual deficit had increased to 115,000,000, and declared that the only remedy was to reform altogether the financial system by extending the taxes over the property of the nobles and clergy. These astounding disclosures, coming from such a man, fell like a thunderbolt on the court; a hue and cry was raised against Calonne, whom the king at once dismissed from office and exiled to Lorraine. He afterward removed to England, where he wrote several memoirs justificative of his administration; but he had to contend against Necker and several other able financiers, and could not but come out second best. His reputation for ability was not, however, entirely ruined, and he afterward became a most active agent of the French *émigrés* at Coblenz. As an adviser of his protector, the count of Artois, he now evinced the same boldness and ingenuity, but also the same levity, as in his former life. He ultimately separated in disgust from his party, and asked from the first consul, Bonaparte, permission to return to France. This was granted, but death overtook him a few weeks after his return.

**CALORIC** (Lat. *calor*, heat), the name formerly applied to an imaginary material substance, supposed to be the cause of the phenomena of heat. As now used, it is synonymous with **HEAT**, which see.

**CALORIMETER** (Lat. *calor*, heat, Gr. *μετρον*, measure), an instrument for ascertaining the amount of heat in bodies. The first used for this purpose was contrived by Lavoisier and

Laplace, and was directed to determining the comparative quantity of heat developed by the combustion of definite amounts of fuel. The combustion of this was effected in a cylinder, which was let down into a larger one filled around with pounded ice. Another outer cylinder of all also contained ice, which prevented that in the middle cylinder from being affected by the external temperature. The heat from the innermost vessel caused the ice to melt in the cylinder next to it, and the water thus produced ran off through a pipe passing through the bottom. Every pound of this they calculated represented an amount of heat sufficient to raise a pound of water from 82° F. to 185°, or 103 lbs. one degree. Prevostaye, Desains, Regnault, and others, subsequently corrected this calculation, proving that the heat which melts one pound of ice will raise the same quantity of water to 142°. The practical application of this principle, however, did not give correct results, all the water not leaving the ice. Rumford introduced a better method by substituting water for the ice, and ascertaining by a delicate thermometer the increase of temperature in a definite weight of this, caused by the absorption of the caloric. It was on this principle that the improved apparatus of Favre and Silbermann, made use of in their experiments, was founded. The innermost vessel, of gilt sheet brass, shaped like a flask, was sunk, except its projecting neck, in a cylinder of silvered sheet copper containing water, which was placed in a larger cylinder, the space between them all around, and at top and bottom, being filled with swan's-down. Both cylinders were covered with lids provided with apertures for the insertion of tubes and thermometers. One of these tubes, entering the flask near the bottom, served to convey oxygen gas for supporting combustion. The gaseous products passed into another tube, which, emerging from the shoulder of the flask, bent over, and passing through the water, was coiled around under the flask like the worm of the still. It then passed up through the top to a gasometer or an absorbing apparatus. A flat metallic ring, nearly the diameter of the water cylinder, lay at the bottom of the water; and being provided with a rod for a handle which passed up through the top, it could be moved up and down, to thus equalize the temperature throughout the liquid. The gases to be tested were introduced into the flask by a small tube entering its neck and turning up at the bottom to form the jet. Solid bodies were suspended by fine platinum wires; liquids were burned in small capsules, or in lamps with asbestos wicks; charcoal was laid on a sieve-like shelf, the oxygen coming up through it. Thermometers introduced into the water indicated its increase of temperature.—For ascertaining the heat generated where no gases are evolved, these chemists employed a glass globe filled with mercury, and having a tube inserted so as to hold, near the centre of the globe, the sub-

stances to be tested. The globe was provided with a spout like that from a tea-kettle, and in the top of this was inserted a thermometer tube, which, bent at right angles, served on its horizontal limb to measure the expansion of the mercury.

**CALORIMOTOR** (Lat. *calor*, heat, and *moveo*, to move), that form of the galvanic battery by which its plates, few in number, but of great size, are made to evolve an intense degree of heat, making metallic wires red hot, and igniting inflammable bodies. The arrangement of the apparatus, made with this object, was invented by Dr. Robert Hare, and was described by him in a paper read before the academy of natural sciences, Philadelphia, and also published in the "American Journal of Science" (1818), vol. i. p. 418. See **BLASTING**, and also **ELEUTRO-DYNAMICS**.

**CALOVIVUS, ABRAHAM** (German, *Calov*), a German Lutheran divine, born Aug. 16, 1612, at Mohrungen, in Prussia, died in Wittenberg, Feb. 25, 1686. He was rector at Dantzic, and professor of theology at Wittenberg; engaged in numerous theological controversies, conducted with much intemperance on each side; was a rigid adherent of his sect, and opposed the Socinians, and also the conciliatory views of George Calixtus, to which he was the first to apply the name of Syncretism.

**CALOYERS**, or **CALOGERI** (Gr. *καλος* *γαρον*, a handsome old man), Greek monks, mostly of the order of St. Basilus. Their principal convents are on Mount Athos, and are especially resorted to by young men of good family, who find there excellent teaching, and a reputable mode of life. The pupils not only read the Greek fathers, but other Christian writings; and those who desire it, receive a systematic course of theological instruction. The regular clergy of the Greek church is generally recruited here. Those who prefer monastic life are bound to celibacy, to abstain from meat, and observe 4 lents in the year, beside other fasts. They wear a dark cassock, with a belt and a flat cap of the same hue. This is also the costume of the secular clergy, except a white band round the lower part of the cap. Some convents of Caloyers are to be found in the Morea; but they are, in point of learning and discipline, inferior to their brethren in the north. Among the Caloyers, beside those who live in congregations, there are anchorites, who prefer dwelling alone, or with 1 or 2 companions, in hermitages; and recluses, who live in grottoes or caverns, on alms furnished to them by the monasteries. There are also convents of female Caloyers.

**CALPE**, the ancient name of the rock of Gibraltar, at the S. extremity of Spain, the northern of the 2 hills called by the ancients the pillars of Hercules. Across the straits of Gibraltar, on the African coast, was Abyla, the southern pillar.

**CALPEE**, or **KALPEE**, a town of British India, in the district of Bundelound, presidency of Bengal, situated on the right bank of the



Jumna, 45 miles S. W. of Cawnpoor. It is a large, populous, but ill-built town, with a fort commanding the passage of the river, advantageously situated, but of no great strength. The town was once a place of more note than at present, and was the seat of a mint. It is still an important depot for the cotton trade of Bundelound, and is famous for the manufacture of remarkably fine refined sugar. Paper-making is also carried on to some extent. Pop. in 1858, 21,812.—Calpee is said to have been founded as early as the 4th century, by a sovereign of Cambay. After passing through many hands, it was taken from the Mahrattas by the British in 1778, was subsequently relinquished, and in 1802 was again acquired by the East India company by the treaty of Bassein. It was at that time occupied by Nana Govind Rao, jaghiredar of Jaloun, who refused to give it up to the British, and was accordingly besieged, and finally forced into submission. In 1857 it became a place of rendezvous for the disaffected sepoys, and by the spring of 1858 an army of mutineers, said to be 10,000 strong, had assembled there under the command of the rajah of Jhansi and several other native princes. Sir Hugh Rose marched against them from Jhansi, May 26, defeated a force of 7,000 stationed on the road to oppose him, and reaching Calpee, captured it after some hard fighting. The sepoys took to flight, were pursued, and a large amount of ammunition, stores, and a number of elephants, and guns, fell into the hands of the British. By the accounts, however, which left Calcutta by the mail of June 8, the rebels were reported to have routed the forces of Sindia, and to have marched on Gwalior.

CALPURNIUS, TRIVS JULIUS, a Latin pastoral poet, born in Sicily, lived near the end of the 3d century; 11 eclogues have come down bearing his name. The efforts of German scholars to know more than this have resulted in several different plausible, but imaginary, lives of the poet; and in one instance he has been blotted out from history, and a certain Servanus mentioned by Juvenal substituted in his place. His eclogues, too, have been variously divided and distributed between himself, his contemporaries, and his copyists. There is considerable resemblance between these eclogues and those of Virgil.

CALTAGIRONE, or CALATAGIRONE (perhaps the anc. *Calata Hieronis*), a city of Sicily, in the province of Catania; pop. 21,700. It is built on the slope of a hill, and with its suburbs covers a considerable extent of ground. It is the see of a bishop, and is reputed one of the wealthiest and most commercial towns on the island. Its inhabitants excel in all the useful arts, and many of them find employment in the potteries and cotton factories of the place. There are several churches, convents, and a royal college. The town was fortified by the Saracens, and taken from them by the Genoese. Roger Guiscard granted it many privileges.

CALTANISSETTA, a town of Sicily, capital

of the province of the same name, is situated in a fertile plain near the right bank of the Salso, 65 m. S. E. of Palermo; pop. over 16,000. It is well built, with broad, straight streets, a handsome square, and several fine edifices. In its vicinity are several jets of hydrogen gas, and extensive sulphur works.

CALTROP, a kind of thistle which grows in France and Spain, and is troublesome to the feet of cattle.—In military tactics, an iron instrument with four points, so formed, that, however thrown, one will always project upward. They are used to prevent the onset of cavalry.

CALTURA, a seaport town in the S. W. part of Ceylon, about 28 miles S. E. from Colombo. It has a brisk trade, especially with Madras and the Coromandel coast, and contains a chapel and school established by Wesleyan missionaries.

CALUMET, a kind of pipe, the symbol of peace among the American Indians. The bowl is made of a soft marble, and the stem is usually a long reed adorned with feathers and hieroglyphic figures according to the rank of the owner. The calumet is introduced upon all important occasions when Indian chiefs meet together, or meet with whites. It is filled not only with tobacco, but with the leaves of various other plants, and is passed round for every member of the company to take a few whiffs. To receive the calumet when thus passed signifies that the terms proposed are accepted.

CALUMET, an eastern county of Wisconsin, along the eastern shore of Winnebago lake; area, 860 sq. m.; pop. in 1855, 3,631. The surface is mountainous, a high ridge running across the county nearly parallel with the lake. The soil yields excellent crops of corn, wheat, barley, oats, and hay. Timber is abundant, and pasturage is good. The productions in 1850 were 7,827 bushels of wheat, 8,428 of oats, 10,532 of Indian corn, 8,887 of barley, 2,116 of potatoes, 846 tons of hay, and 21,588 pounds of butter. There were 4 saw mills, 8 churches, and 173 pupils attending public schools. Organized in 1842. Capital, Ohilton.

CALUMIOK, or CALUMET RIVER, rises in La Porte co., Indiana, flows westward into Illinois, and there divides; one of its branches enters Lake Michigan, the other makes a bend, runs eastward parallel with its former course, and only 8 or 4 miles north of it, recrosses the Indiana boundary, and discharges its waters into Lake Michigan, in Lake co.

CALVADOS, a maritime department of France, divided into 6 arrondissements: Caen, Falaise, Bayeux, Vire, Lisieux, and Pont l'Évêque, bordering on the English channel, and deriving its name from a long reef of rocks on its coast. It is watered by several rivers, the most important of which is the Orne, but none of them is navigable for any considerable extent inland. The climate is rather cold and moist; the surface, which in some parts is intersected by elevated hills, possesses fine plains and beautiful valleys, among which that of Auge is cel-

abundant. Agriculture is in an advanced state, there being a large surplus of wheat for exportation; the crops of barley, rye, and buckwheat are considerable, but that of oats is insufficient for home consumption. Excellent apples are cultivated everywhere, principally to make cider, which is the common beverage of the country. Few, if any, departments of France can compete with this in live stock. The horses are reckoned the finest in France. Numerous herds of cattle are fattened in the valleys for the markets of Paris, Rouen, and Caen. Some manufactures are successfully carried on, especially lace; many hands are also occupied in the spinning and weaving of cotton and wool; there are, beside, factories of cutlery, hardware, earthenware, paper mills, &c. The total value of the raw material consumed averages about \$10,000,000, and of the manufactured articles, \$13,000,000 annually, giving employment to about 20,000 persons, whose average daily wages are about 50 cents for men, 25 cents for women, and 17 cents for children. The mackerel and herring fisheries are extensively carried on along the coast. Although destitute of good ports, this department has a considerable export trade with several countries of Europe and the United States, mostly carried on through Havre. Area, 2,145 sq. m.; pop. in 1856, 478,897.

CALVAERT, or CALVART, DIONYSIUS, surnamed *DIONISIO FLAMMINGO*, a painter of the Bolognese school, born in Antwerp in 1555, died in Bologna in 1619. He had a school in Bologna, thronged by pupils, including Guido, Albano, and Domenichino.

CALVARY (the Latin translation of the Hebrew word *Golgotha*, meaning the place of a skull) was, 1,900 years ago, a pebbly and arid little hill on the north of Jerusalem, just outside of the walls. It was a tradition that Adam was buried there, and that Abraham led thither his son to the altar of sacrifice. It was the place of public execution among the Jews, and a large vacant space was left between the mount and the wall of the town for the presence of spectators. The other sides of the eminence were occupied by gardens. Calvary was the scene of the crucifixion of Jesus Christ, whose body was laid in a sepulchre prepared in a garden near by, which belonged to Joseph of Arimathea, a secret disciple. Since that time the face of this region has much changed. Neither agriculture nor trade flourishes in the vicinity. Titus destroyed the temple of Jerusalem, and Hadrian demolished the city itself. The latter, wishing to blot from the Jewish mind the traditions of their sacred places, erected a statue of Jupiter upon the holy sepulchre, and of Venus upon the summit of Calvary. But within two centuries these were overthrown, and the place of the latter occupied by the church of the Holy Sepulchre. In the wars of the Mohammedans and the crusaders this was repeatedly destroyed and replaced; and while the mount was occupied by the Christians, they

erected the stately temple, the walls of which still remain.

CALVERT, a southern county of Maryland, on the shores of Chesapeake bay; area, 250 sq. m. The Patuxent river forms its western boundary, and empties into the bay at the southern extremity of the county. The surface is rolling; the soil is good, and much improved by the application of marl, which is found here in considerable quantity. The productions in 1850 were 8,106,858 lbs. of tobacco, 851,890 bushels of Indian corn, 87,489 of wheat, and 28,644 of oats. There were 25 grist mills, 1 saw mill, 11 churches, and 875 pupils attending public schools. The county was formed in 1654, and named in honor of the family to which Lord Baltimore belonged. Pop. in 1850, 9,646, of whom 4,486 were slaves. Capital, Prince Frederick.

CALVERT, the name of a distinguished English family, descended from an ancient and noble house of the same name in Flanders, and connected for several generations with the colonial history of Maryland.—Sir GEORGE CALVERT, the first baron of Baltimore, born at Kipling in Yorkshire, about 1582, died in London, April 15, 1632. He graduated at Oxford in 1597, when but 15 years old. According to the custom of the time with persons of rank, he was sent abroad to travel, and on his return was appointed secretary of Robert Cecil, afterward earl of Salisbury. On Cecil's appointment as lord high treasurer, Calvert still continued in his service. At a subsequent period, Cecil procured for Calvert one of the clerkships of the privy council. He received the honors of knighthood in 1617, and James I. appears to have always held a high opinion of him. At length he was appointed one of the 2 secretaries of state, and in 1620 he was granted an annual pension of £1,000. Five years after this time, he took refuge from the religious controversies which distracted parties, by joining the Roman Catholic church; a movement which, however, did not bring him into disfavor with James. Of late years some controversy has arisen between Protestant and Catholic writers, in regard to the account of his conversion. At the date of the Avalon charter, he is generally reputed to have been of the Protestant faith, but says Fuller, in his "Worthies of England," when he resigned his post of secretary of state in 1624, "he freely confessed to the king that he was then become a Roman Catholic." This passage is the chief authority for his conversion; but those who disbelieve the story of Calvert's change of creed, maintain that the author of the "Worthies" has not sufficient ground for his statement, and in short that Calvert was never converted at all, having always been a Catholic. They base their arguments on the fact that he settled his colony in Newfoundland in 1621, he having a wish, according to Oldmixon and Bozman, to found an asylum for persecuted Catholics, and therefore he must have been a Catholic then, 8 years before the date

assigned by Fuller. They further assert that his 12 children were all brought up in the Catholic faith, no record whatever of their conversion existing, and his marriage with Anne, daughter of George Myne of Hertfordshire, and granddaughter of Sir Thomas Wroth of Durance, in Enfield, Middlesex, having taken place in 1604-'5. Their strongest arguments, however, are the repeated declarations of the king against Catholics, those who were apostates from Protestantism falling under his severest displeasure. In his speech delivered at Whitehall on the opening of parliament in 1609, he says, "I divide all my subjects that are papists into 2 ranks: either old papists that were so brought up in times of popery, and those that be younger in years, yet have never drunk in other milk; or else such as do become apostates, having once been of our profession and have forsaken the truth. . . . For the former sort, I pity them, but if they be good and quiet subjects, I hate not their persons. But as for these apostates, who I know must be the greatest haters of their own sect, I confess I can never show any favorable countenance toward them;" and in 1616, in his star chamber speech, he says: "I can love the person of a papist, being otherwise a good man and honestly bred, never having known any other religion; but the person of an apostate papist I hate." In spite of such sentiments Calvert always retained the king's regard. Catholic writers, however, insist upon the conversion, and bring forward testimony in turn to support their assertions. The king retained Calvert in the privy council, although he resigned his place as secretary of state, and in 1625 he was elevated to the Irish peerage by the title of baron of Baltimore, in the county of Longford, Ireland. Calvert had long been imbued with the idea of planting colonial establishments in America, and obtained a patent from King James which created him sole lord and proprietor of a part of the island of Newfoundland, and with all the rights and privileges of nobility. To this place, which was styled Ferryland, he sent a colony in 1621, and he spent of his own fortune full £25,000 in building warehouses and granaries, as well as a superb mansion for his own accommodation. He followed in 1625, about the time of King James's death, but was completely disappointed with Newfoundland, the climate proving too severe for English constitutions, and the soil too rugged to be worked with profit. After remaining a few years, he abandoned the colony and sought a more genial clime. In 1628 he visited the Virginia settlements and explored the waters of the Chesapeake bay, delighting in its magnificent expanse and noble tributaries, and in the delicious climate and the naturally fertile lands of that fair region. The waters of the bay and its rivers abounded with fish and wild fowl, and the woods were vocal with the song of birds. A tradition exists to this day in Maryland, that Lord Baltimore was charmed with the appearance of the oriole (*yrphantus Baltimore*) giving

it his name, and choosing its brilliant black and orange plumage for his livery. But the reception he met in the Virginia colony was by no means cordial; there the church of England party had full sway, and the authorities tendered to him the oath of supremacy, which as a Roman Catholic he could not take, and in his disappointment it is supposed that he formed the plan of obtaining a new charter from Charles I., and seeking to plant a colony in a more southern latitude. From 1628 to 1632, little is known respecting Lord Baltimore, but he is supposed to have returned to the settlement in Newfoundland, as history relates that he rendered service in the war then carried on between England and France, and he is said to have rescued 20 sail of fishing vessels (those of Newfoundland at the time being upward of 250 in number), after they had been captured by a French squadron. He returned to England, and in the latter year applied to the king for a renewal of his former charter, with the privilege of a new location, and his petition was acceded to. Steps were taken toward the drawing of the papers, and there is no doubt that the draft of the charter "was penned by the first Lord Baltimore himself, although it was finally issued for the benefit of his son." The territory granted was that which now forms the states of Maryland and Delaware, but Lord Baltimore died before the papers could be duly executed. Though anxious for the hereditary privileges of nobility, the character of Calvert will ever shine as that of one who cherished liberty of conscience. In this respect he was in advance of the general bigotry of his time, and his memory is accordingly revered, not only by the people of Maryland, but by all who are interested in the history of civil and religious freedom. A complete life of Lord Baltimore is now (1858) in course of preparation by Mr. Sebastian F. Streeter of Baltimore.—OZOLIVUS, son of the preceding, and the 2d baron of Baltimore, born in 1623, died in 1676. On June 20, 1632, the charter which had been intended for his father was executed for him by the command of Charles I. It consisted of 23 sections, the 4th of which conferred on Lord Baltimore and his heirs forever, absolute ownership of the territory granted, and also certain civil and ecclesiastical powers, like those derived from the middle ages and continued in the families of the most powerful nobility. The manner in which this design of fastening upon the colony the institutions of the feudal system was defeated, forms a very interesting feature in the early history of Maryland. The name first intended for the colony was *Crescentia*, but Maryland was adopted instead, in compliment to the queen, Henrietta Maria. The relations which Calvert as proprietor bore to his sovereign are expressed in the charter in the obscure language of such instruments in that age, but its meaning is, that by the annual payment of 2 Indian arrows, Lord Baltimore acknowledges that the original title to the land is still in the possession

of the king, and that the soil granted to him yet belongs to the British empire. Entire exemption from taxation was conceded to the colonists, the very point which, a century and a half later, led to the American revolution. Lord Baltimore did not emigrate to America, but gave the management of the colony to his brother.—LEONARD, brother of the preceding, first governor of Maryland, died June 9, 1647. For some reason Lord Baltimore decided not to go in person to plant the Maryland colony, and his brother Leonard was accordingly deputed to conduct the expedition. The first emigration took place in 1633, 13 years after the voyage of the Mayflower to Plymouth, and consisted of about 200 persons. Among them were 8 Jesuits, one of whom, Father White, corresponded with the superior of his order in Rome. A copy of his letters has recently been obtained, and although principally relating to the work of the mission among the Indians, they contain an interesting and authentic account of the first settlement in Maryland. On Nov. 22, 1633, the Maryland pilgrims sailed from Cowes, Isle of Wight, in 2 small vessels: the Ark, a ship of 300 tons, and the Dove, Lord Baltimore's pinnace, of about 50 tons. They sailed by way of the Canary islands, and were 3 months upon the voyage, although they were at sea only 7 weeks and 3 days. They suffered considerably from bad weather, and Father White says "it seemed as if all the spirits of storms, and the evil and malignant genii of Maryland, had come forth in battle array against us." From the Canaries they steered for Barbadoes, and after touching there and at 1 or 2 of the neighboring islands, they reached Point Comfort in Virginia, Feb. 24, 1634. Here they were entertained for some days, and on March 8 sailed up the Chesapeake and into the Potomac, landing at an island which they called St. Clement's, and on the 25th of the month, "the day of Annunciation of the Holy Virgin Mary, offered in this island, for the first time in this region of the world, the sacrifice of the mass." A large cross hewn from a tree was then set up, and "we raised it a trophy to Christ the Saviour, humbly chanting on bended knees, and with deep emotion, the litany of the cross." Proceeding from this island about 9 leagues toward the north, they entered a river which they called St. George's. "Two bays appear at its mouth, capable of containing 300 of the largest ships. One of the bays we consecrated to St. George, the other more inland to the Blessed Virgin Mary. We landed on the right bank, and having advanced about 1,000 paces from the shore, we gave the name of St. Mary to the intended city." Appropriate religious and military ceremonies accompanied the act of taking possession, March 27, 1634; the men were drawn up on the shore and fired volleys of musketry, while the cannon answered from the ships. Of this city of St. Mary's at the present day scarce a trace remains, and by a stranger even its site would be unnoticed.

While the missionaries were making friends with the Indian tribes, Calvert found much to harass him. Before his arrival, Kent island in the Chesapeake bay, situated nearly in the centre of Lord Baltimore's province, had been occupied by a certain William Clayborne, and this man was the source of much trouble to Calvert during his whole life. When the patent was made out for Lord Baltimore, Kent island became a part of Maryland, and Clayborne owed allegiance to Calvert as proprietary. It seems that his character as a bold, unscrupulous man was known to Lord Baltimore before the colonists sailed from England, and the proprietary had issued orders that if he attempted to resist the authority of his brother Leonard, he should be seized and punished. Clayborne, however, did not wait for any summons to surrender, but declared war on his own account against the settlers at St. Mary's. There is abundant reason to believe that he was abetted in his designs by the Virginian authorities at Jamestown, who looked with an evil and jealous eye on the colony of Maryland. Clayborne fitted out an armed pinnace, manned by 14 men, and on April 28, 1635, his force engaged 2 other pinnaces prepared by Gov. Calvert to resist his aggression. Clayborne's vessel was captured, with a loss of several men, and he himself fled to Virginia, whence he was deported to England. In 1638 he presented a petition to the king, setting forth his grievances, which however obtained him nothing, and he returned to Virginia, where, to his mortification, he found that the governor and council of that colony, having now fully recognized Lord Baltimore's rights, forbade any one in their jurisdiction from trading within his domain—Clayborne being thus now restrained by the authorities of Virginia in the very thing in which he had been formerly encouraged. His property on Kent island had, meanwhile, been declared forfeited by the provincial assembly of Maryland; he petitioned for its restoration, and, as a dangerous rebel, was refused. He eventually sought revenge, as we shall relate in order, and meanwhile retired to Virginia.—As Lord Baltimore belonged to the aristocracy of England, he was anxious, in planting his colony, to establish within it similar hereditary titles and privileges to those which, in the mother country, had come down from the feudal system, and therefore the tenure of lands in Maryland was at first intended to found an order of nobility. He designed that the lands should be owned in large masses, and the original conditions of emigration were in accordance with this plan. In his special order of commission to his brother, dated at Portsmouth, Aug. 8, 1633, he renews these conditions, and had these provisions been fully established, a great part of Maryland would have been parcelled out in grants of 2,000 or 3,000 acres of land, giving to their proprietors not only the right of soil, but of holding courts leet and courts baron to decide upon personal claims, and also of property. These rights of

jurisdiction were to descend from the original owner to his heirs. In order, however, to found an aristocracy upon a solid basis as it existed in England, it was also necessary to establish titles, primogeniture, and hereditary legislation, such as is perpetuated by a house of lords. The provision for titles and dignities had been sketched by Lord Baltimore, but he could not secure the other provisions without a written constitution, expressly enacting all the features of a body of aristocracy. Beside, in the charter itself was a provision which, in effect, nullified the one for creating an aristocracy, inasmuch as it prescribed that laws could only be made with "the advice, assent, and approbation of the freemen of said province, or of the greater part of them, or of their delegates or deputies." The idea of founding an aristocracy seems, from the very first, to have been of no effect, as no single title was ever created, and none recognized, but that of the proprietary himself; so that in due time, when the country revolted against the authority of England, Maryland was found to be as democratic as any of her sister colonies. It is true that in some of the early manors baronial courts were held. A record of one is still preserved, and runs as follows: "A court baron was held at the manor of St. Gabriel, on March 7, 1656, by the steward of the lady of the manor, when one Martin Kirk took of the lady of the manor, in full court by delivery of the said steward, by the rod, according to the custom of the said manor, one messuage, lying in the said manor, by the yearly rent of —; and so the said Kirk, having done his fealty to the lady, was thereof admitted tenant." Such instances were, however, very rare; and moreover, a difference springing up between Lord Baltimore and the colonists, as to the right of originating laws, many of the acts of the assembly of 1687, among which were 6 relating to manors, never took effect, and there was no after attempt to revive them. The manors, in fact, intended to lay the foundation of powerful families, were soon subdivided, and became mere farms belonging to the different descendants of the original proprietors. The last one ceased to exist in its entirety with Charles Carroll of Carrollton, the latest surviving signer of the declaration of independence, although a part of it now forms a fine estate in the possession of his grandson, and is styled "The Manor." Meanwhile, the troubles in England between the king and parliament, ending in 1648 in the overthrow of the monarch and the aristocracy, had great effect upon Maryland in frustrating the design of establishing nobility.—Much trouble was experienced in the early days of the colony in regard to the laws intended to govern it. Had Lord Baltimore accompanied the expedition, he would have been able to see what laws in the infancy of the colony were necessary, and what were expedient. But, at the last moment, he decided to remain, so that the one who was most important to the law-making power was not to be communicated with under 8 or 4

months, and it was soon found that the legislation of the proprietary in England for an American colony would not answer. The difficulty was also increased by the vague terms of the charter, which did not clearly express whether the laws were to be originated by the colonists or the proprietary. On this account, for several years the colony held together without any laws at all, but in great danger of anarchy. Finally, Lord Baltimore magnanimously withdrew from what he considered his just right, and conceded to the colonists permission to frame their own laws, reserving only to himself, or his deputy, a veto in case of necessity. After the assembly of Maryland had been fairly organized, several laws were passed in relation to religion, which by some writers have been made the subject of extravagant praise, while others have unjustly neglected to award them due merit. It does not appear that Lord Baltimore, or any of the settlers, had an intention on founding the colony of proclaiming absolute religious freedom, and one of the first acts of the assembly of 1639 was to make the Roman Catholic religion the creed of the state. But the true glory of the Catholics of Maryland, in that age of intolerance, was their permission for all bodies of Christians to worship God according to their conscience. In "an act for the liberties of the people," it was declared that "all Christian inhabitants (slaves excepted) are to have and enjoy all such rights, liberties, immunities, privileges, and free customs within this province, as any natural born subject of England hath or ought to have." At the same time, to show that the Roman Catholic faith was predominant, eating flesh in time of Lent was forbidden, under penalty of a fine, and this was obligatory on Protestants as well as Catholics. Some 10 years after this time another law was passed, which expresses even more clearly the rights of Protestants, and breathes the purest spirit of religious freedom. A portion of it declared that "no person or persons whatsoever, professing to believe in Jesus Christ, shall from henceforth be any way troubled, molested, or discountenanced, for and in respect of his or her religion, nor in the free exercise thereof, nor in any way compelled to the belief or exercise of any other religion, against his or her consent." At the same time it was forbidden to blaspheme against the blessed Virgin Mary, or the apostles or evangelists, or to reproach any one with the epithets of heretic, schismatic, or idolater, or for being a "Puritan, Independent, Presbyterian, Popish priest, Jesuit, Jesuited Papist, Lutheran, Calvinist, Anabaptist, Brownist, Antinomian, Barrowist, Roundhead, or Separatist." The toleration thus freely granted continued always to be enjoyed, and redounds to the honor of the colonists, and no less of Lord Baltimore; but the claim of absolute religious freedom, that is, dissolution of all connection between church and state, did not, as some zealous writers have endeavored to prove, originate in Maryland. To Roger Williams, the founder of Rhode Island,

is this honor due, and to him alone. As the settlements of the whites extended in Maryland, the Indians, who for a number of years had preserved friendly relations with them, became troublesome, and as early as 1688 it was found necessary to pass an "act for military discipline." Troubles with the natives continued to increase for several years, and reached their height in 1642. Aid on several occasions was sought from Virginia, and in 1643 the natives were shut out of the province, or rather that part of it forming a peninsula, from tide water on the Patuxent river by a direct line crossing to the Potomac.—During the 9 years which had now elapsed since the landing of the Maryland pilgrims, a great change in political affairs had taken place in England; the king had been deprived of nearly all power, and was about entering on that civil war which cost him his throne and life. The colonists were more or less affected by the convulsion, and Maryland in an especial degree. Lord Baltimore and his brother Leonard had every reason to fear that they would be deprived by parliament of all their rights and possessions in the new world, the proprietary being strongly interested in the royal cause. Leonard Calvert, in order, doubtless, to consult with his brother, and shape his conduct for the future, visited England in 1648, returning the following year. In his absence much trouble was experienced from the conduct of one Ingle, and this man, in connection with Calvert's old enemy, Clayborne, harassed the settlement at St. Mary's. On the governor's return, he found every thing in confusion, and although he brought a new commission from his brother, confirming him in all his previous powers, Clayborne, in connection with Ingle, who is supposed to have been little better than a pirate, regained possession of Kent island, invaded the western shore of the Chesapeake, and expelling the proprietary government, compelled Gov. Calvert to retire to Virginia. Among other property, the colonial records fell into the hands of these marauders, and were greatly mutilated, and in part destroyed. This happened in 1645, but 2 years after Leonard Calvert returned with a strong military force, took possession of Kent island, and reestablished his rights over the entire province. But Calvert had probably been much afflicted, and his various anxieties both for the state of England and of Maryland doubtless hastened his end. The circumstances of his death are unknown, only that he named a successor as governor, Thomas Green, and died on June 9, 1647. It is greatly to be regretted, that at this day such meagre records exist for memorials of Leonard Calvert and his brother, Lord Baltimore; but, "together they raised up a community unsurpassed in this western world for order, harmony, and general prosperity; and the scanty materials of its early history are in no small measure owing to the fact that, as history deals principally in wars and calamities, the happiness of the early inhabitants of Maryland left little to record."

CALVERT, GEORGE HENRY, an American author, born in Baltimore, Md., in 1803. His father's ancestors were distinguished both in colonial and European history, and his mother was a native of Antwerp, and a lineal descendant of the painter Rubens. He graduated at Harvard college in 1823, and afterward studied at Göttingen in Germany. On returning to America, he edited for several years the "Baltimore American" newspaper. In 1832 he published his "Illustrations of Phrenology," the first American treatise on the subject; in 1833, a "Volume from the Life of Robert Barclay;" in 1836, a metrical version of Schiller's *Don Carlos*; in 1840, a fragment on "Arnold and André," 2 cantos of "Cabirol," a poem in the stanza of "Don Juan," and a tragedy entitled "Count Julian." He soon after again visited Europe, and, in his letters to the "Baltimore American," was the first to announce and discuss in this country the theory of the water-cure. He translated and published in 1845 a portion of the correspondence between Goethe and Schiller, and in 1846 and 1852 published 2 series of "Scenes and Thoughts in Europe." Hydropathy and the schemes of Fourier were among the subjects which he treated. Except when engaged in foreign travel, Mr. Calvert has resided since 1843 in Newport, R. I., of which city he was mayor in 1858. In the same year he was the orator at the celebration of the 40th anniversary of the battle of Lake Erie. He has contributed occasionally to the "North American Review," "Putnam's Monthly," and other literary periodicals.

CALVI, LAZZARO AND PANTALEONE, two Genoese painters, sons of Agostino Calvi, of whom the former was born in 1502 and died in 1606, and the latter died in 1595. They painted in concert many pictures in Genoa, Monaco, and Naples. In particular, the façade of the Palazzo Doria (now Spinola), a spirited composition crowded with figures, is highly extolled. Lazzaro was the more inventive genius of the two, his brother generally working out the details of their joint productions; but his disposition was envious, and his career was marked by atrocious crimes. Having failed in competition with Cambiaso to secure the execution of the frescoes in the church of St. Matteo, in Genoa, in a fit of rage he renounced his art, and for 20 years followed the calling of a sailor. At the end of this period he resumed his pencil, and continued to paint until his 85th year.

CALVIN, JOHN, the theologian and organizing genius of the Reformed churches, was born at Noyon, near Paris, July 10, 1509, died in Geneva, May 27, 1564. The grandfather of Calvin was a cooper. His father, Gérard Chauvin, or Calvin (sometimes written Caulvin), apostolic notary and fiscal procurator in Noyon, was a man of shrewd intelligence; his mother, Jeanne Lanfranc de Cambrai, noted for her beauty and her devotion, imbued her son with her own strict religious views. He was educated, at his father's expense, with the children

of the noble De Mommor family. At the age of 12, he was presented by one of this family to the benefice of the chapel de la Gesina, to defray the cost of his education for the priesthood. He was already noted for his memory and diligence, as well as for his moral strictness. Among the youth he was known as the "accusative." Removed to Paris with the De Mommor children, he prosecuted his studies in the collège de la Marche, where Mathurin Cordier, an able scholar, taught him Latin; and then in the collège Montaigu, where a Spaniard initiated him into the scholastic dialectics. At the age of 18, though he had only received tonsure, he obtained the living of Marteville, Sept. 27, 1527, which was in 2 years exchanged, July, 1529, for that of Pont l'Évêque, the village where his grandfather had made wine casks. He preached short sermons, and continued his studies with the greatest assiduity. After a frugal evening repast, says Beza, he would study till midnight, and in early morning before he rose he would review all he had learned the previous day. His ambitious father, foreseeing his fame, perhaps alarmed by the prospective troubles in the church, and thinking the legal profession a surer road to wealth and parliament, now changed his plans, and sent his son to Orleans to study law under that eminent jurist, Pierre l'Étoile (Peter de Stella). This training unconsciously prepared him to be the legislator of Geneva. About the same time the influence of his relative, Robert Olivetan, who translated the Bible into French, led him to question his traditional and unawakened faith. By day he pursued the study of the law, and by night the study of the Bible, with what commentaries he could command, to resolve his growing doubts. In the law he made such progress that several times in the absence of the professor the youthful student was called to fill his place. A radical change in his religious views was marked by what he himself calls "a sudden conversion," which seems to have at once broken the thralldom of the mediæval system. "The secret guidance of God's providence," he concisely tells us, "delivered him from the superstitions of the papacy." Henceforth he sought the society and confirmed the opinions of those who were struggling for the new light. His protracted studies and mental conflicts already preyed upon his health, and his whole subsequent life was a contest with death. His legal and theological studies were continued at Bourges, the former under the learned Italian, Alciati. Melchior Wolmar not only taught him the Greek of the New Testament, but also gave him further taste of heresy. His position in the university was so prominent that he was requested, though only a student, to draw up an opinion, still extant, upon the divorce of Henry VIII., when that question was submitted to the faculty. But zeal for the truth of God had now become, as Bayous declares, the passion of his life. He cheered all of like mind, resolving their scruples;

even when he sought quiet, his retreat became, he says, a public school. His native timidity could not hide the shining of the light within him, and many others came to share it. The time of indecision was past; such conflicts, such lingering attachment to the past, as we find in Luther and Melancthon, form no part of the recorded experience of John Calvin. At the age of 20 he was already full-fashioned as a reformer. The death of his father, in 1528 or '30—the date is uncertain—interrupted his university course. For 2 or 3 years we hear little of him. From 1539 he was at least a part of the time in Paris struggling with the reformers. In the midst of persecutions he gave up the legal profession, and devoted himself to theology. The Sorbonne had just proscribed the tenets of Luther. The congregation of Meaux, of some 800 or 400, which even Bishop Briçonnet had at first favored, was dispersed by violence; Farel had fled; Leclerc was branded and burnt; Lefèvre was in Navarre; several persons (7 in 1528) had been burned for heresy. Calvin's sermons, usually ending with the words, "If God be for us, who can be against us?" inspired the timid with new zeal. To the imprisoned he sent messages of comfort and hope. The friends of reform looked to him as their champion. At his own expense he now published (April, 1532) an edition of the *De Clementia* of the austere Seneca, perhaps his own model in Latin style. At that time no better philological work had been edited by so youthful a scholar. It has been conjectured that it was intended to move Francis I. to clemency, but the inevitable comparison with Nero was neither flattering nor persuasive; yet the king did not escape the suspicion of being for a time inclined to favor the reform. Next came a bolder venture. Nicolas Cop, a friend of Calvin, just chosen rector of the Sorbonne, delivered, according to the custom at the feast of All Saints, an oration, which is supposed to have been written by Calvin, in which he discoursed, contrary to all precedent, upon the doctrine of justification by faith alone. The amazed and indignant Sorbonne ordered it to be burnt, and Cop and Calvin were obliged to shake off the dust from their feet in a hasty flight, the latter, it is rumored, being let down by the wall in a basket, after the primitive apostolic method. He was welcomed at Nérac by Queen Margaret of Navarre, the sister of Francis I., and the refuge of the persecuted; her own book, the "Mirror of a Sinful Soul," was in small favor at the Sorbonne. In Angoulême, with his friend Louis du Tillet, Calvin distributed sermons among the people and began his "Institutes." The venerable Lefèvre d'Étaples, whom he met at Nérac, at the court of Navarre, in 1533, foretold that this young man would "restore the church of France." Returning to Paris, at great personal risk, he accepted a challenge of Servetus to discuss the positions advanced in his recent work on the "Errors of the Trinity." Bu

Servetus failed to appear. When they at last met it was in a more tragic encounter. In 1534 Calvin published at Orleans his *Psychopanychia*, in which, with scriptural reasons and cogent logic, he refuted a prevalent Anabaptist tenet, similar to one of Origen's, that the soul was in sleep between death and the resurrection. By the over-zealous dissemination of the reformed "Placards," in 1535, persecution was again aroused. Calvin, desiring a quiet retreat for study, went first to Strasbourg, where Bucer welcomed him with open arms, and thence to Basel, where Grynaeus and Wolfgang Capiton were working for the reform. Under the latter he began the study of Hebrew. The French and German reformers were now at work together. The reputation of Calvin as an earnest reformer and one of the most learned men of the age had preceded him. Johannes von Sturm spoke of him as *acutissimo judicio, summaque doctrina, et egregia memoria praeditus*. Not only his acumen and learning, but his unsurpassed systematic talents were now to be exhibited in that work which caused Melancthon to hail him as "the theologian," and which brought into one body of divinity the *disiecta membra* of the reformed opinions, scattered throughout central and western Europe. By a thorough study of the epistles of Paul and the psalms of David, by a profound inward experience, by severe training in the forms of logic, by a wide erudition and an unrivalled polemic talent, and by such mastery of the Latin language as was not surpassed even among the Italian literati, he was prepared for the production of a work which at once commanded the attention of Europe and became a bulwark of the reformed faith. No man at the age of 25 has composed a system of philosophy or theology that can be matched with it; solid works of reflection are usually the fruit of much riper years. The youthful aspirant has most need of change: the opinions of Calvin in the edition of 1536 and in that of 1559, the last of his own revision, are unchanged, or changed only as the sapling is changed into the oak. Beza writes: "Though prepared in haste, he never changed any thing;" Scaliger: "He made no retractions though he wrote much." The immediate occasion of the work was the charges circulated against the reformers, accusing them, as a body, of holding the distorted opinions and insurrectionary projects with which one class of the Anabaptists had agitated Germany. Francis I. had lent his authority to the stigma. "Silence would now be treason," said Calvin. The Latin preface of the edition of 1536, addressed to this monarch, relates the charges and defends the reform with such dignity and method, that it takes rank as one of the three immortal prefaces in literature: that of President De Thou to his "History," and of Casaubon to Polybius, being alone compared with it. The first edition of the "Institutes" was probably published in 1536, in French, and anonymously; no copy of

it is extant. The edition of 1536 was issued at Basel, in Latin; this has 6 chapters; another in 1539 has 17; improved editions appeared during Calvin's life in 1543, 1545, 1549, 1550, and 1559. Numerous editions have been since published, and translations into most of the European languages, and into Greek and even Arabic. A new impression of the edition of 1759, which is considered the most complete, was brought out by Tholuck in Berlin, 1834-'35, and a new edition of Krummacher's German translation of the same appeared in 1884. The reformation produced no other work so complete and full; Melancthon's *Loci* are but a fragment in the comparison. The theology of St. Paul was here expounded for the illumination of the 16th century; the system of Augustine was revived, without its sacramental grace. In its full form, the "Institutes" is divided into 4 books, treating successively of the knowledge of God as the Creator and Sovereign of the world, of the knowledge of God as Redeemer in Christ, of participation in the grace of Christ, and the fruits thereof, and of the external media (church and sacraments) by which God unites us unto, and retains us in, the fellowship of Christ. The rational power of the work is owing to the fact that it carries one dominant idea through all parts of the system, the idea of the divine sovereignty; and this idea was taken by Calvin, not from the region of speculation, but from his deep religious feeling. If it be a work of one idea, that idea must be confessed to be the grandest of all. For the first time in Christian literature, a system of theology was elaborated in all its parts on the basis of the Divine will as supreme. That will, in Calvin's view, though hidden to us, is not arbitrary, but most wise and holy. The human race, corrupted radically in the fall with Adam, has upon it the guilt and impotence of original sin; its redemption can be achieved only through an incarnation and a propitiation; of this redemption only electing grace can make the soul a participant, and such grace once given is never lost; this election can come only from God, and it includes only a part of the race, the rest being left to perdition; election and perdition (the *horribile decretum*) are both predestinated in the Divine plan; that plan is a decree, and this decree is eternal and unchangeable; all that is external and apparent is but the unfolding of this eternal plan; the church, "our mother," contains only the visible signs and seals of a grace which is essentially invisible; justification is by faith alone, and faith is the gift of God. Such was the stern anatomy of the system of predestination. It went behind the whole outward order of the mediæval church, the papal supremacy, the episcopate and the priesthood, the complicated ritual, the multiplied sacraments, the whole system of meritorious works and of monastic vows; it tested these by the Bible as the only rule of faith, and by the principle that grace is internal



and immediate. The polemical astuteness and doctrinal completeness of the "Institutes" gave it an immediate fame. The reform, supposed to be sporadic, was here concentrated in living unity and vigor. Less heed was given to the comparative neglect of human freedom than to the searching exposure of the vanity of human merit. The sovereignty of God was brought to bear against the supremacy of the pope.—Renée de France, daughter of Louis XII., married to Ercole II., duke of Ferrara, imitating the example as she shared the opinions of Margaret of Navarre, invited Calvin to her court, then the refuge of many of the persecuted. Under the name of Charles d'Espeville he here enjoyed for a short time comparative repose, yet winning Madame de Soubise, Anne and Jean de Parthenay, and others, to the new opinions. The vigilant inquisition, already crushing out Italian reform, soon compelled him to retrace his steps. After tarrying a while at Aosta, he came for the last time to his native place, and arranged his family affairs. Prevented by the war in Lorraine from gaining Strasbourg by the most direct route, he came, in Aug. 1536, not without personal peril, to Geneva, led by a secret providence, which changed all his plans of seclusion, and transformed the nervous scholar into a bold practical reformer. He was now 27 years old. Geneva was to be at once the test and triumph of Calvin's whole system. No place in Europe presented greater difficulties, so sharp was the conflict of its parties, and so corrupt was it in morals; and no place had such advantages as a radiating centre. At this moment it was rent by factions. Delivered from the domination of the duke of Savoy, it had received the reformed opinions through the zeal of William Farel, and in Aug. 1535, established the new service. But the old parties, the Eidgenossen (confederates), and the Mameluks (Savoyards), reappeared under new forms. The city was demoralized; libertinism as to both faith and morals was popular, though the old *conseil général* had been revived, and had already attempted the prohibition of worldly amusements. But the strict party was in the minority, and Farel, ardent in the onset, knew himself unequal to the work of reorganization. Hearing of Calvin's presence in the city, from one who had recognized that pale visage and those keen eyes in a crowd, he besought him to remain; and when he pleaded his need of repose, and desire for study, Farel broke out in a solemn adjuration: "Since you refuse to do the work of the Lord in this church, may the Lord curse the repose you seek, and also your studies!" Calvin yielded, he says, "as if to the voice of the Eternal." At first he would only teach theology, but he preached a sermon, and crowds followed him to secure its repetition; and he was obliged to become one of the pastors. His salary must have been slight, judging from the fact that after 6 months (Feb. 18, 1537), the council voted him 6 crowns, "seeing he had not received any thing." In conjunction with Farel

and Viret, he at once proceeded to the work of organizing the church affairs. In 1537 he published a catechism in French (1538, in Latin), extracted from his "Institutes," "since to build an edifice that is to last long, the children must be instructed according to their littleness." A "Confession of Faith," with articles of strict discipline annexed, had been approved by the council in Nov. 1536, and was read in church every Sunday. At a public disputation with the Anabaptists, March 18, 1537, he put them to silence, so that for many years they were no longer heard of. At a disputation in Lausanne, he spoke against the real presence, and on the authority due the fathers. A certain Caroli accused him, Farel, and Viret, of being Arians, because the words Trinity and person (on which Calvin never insisted) were not in the Genevese creed; but his orthodoxy was amply vindicated at Lausanne and Bern. His great work, however, was the regulation of discipline, according to the principles advocated in his "Institutes." And here he encountered wrathful opposition. Many of the Eidgenossen had joined the reforming party from merely patriotic motives; the remaining partisans of Rome and the Anabaptists made common cause with these Libertines against the plan which was to extend ecclesiastical discipline to all the citizens, banishment being the penalty of obstinacy. Some sumptuary regulations were introduced; games of chance and licentious dances were prohibited anew—they had been repeatedly forbidden since 1487; though Calvin granted that cards and dancing might be innocent in themselves, yet they led to "fends and quarrels." The Libertines, whom even the secular historians of Geneva accuse of great injustice and corruption, gained the election of Feb. 8, 1538, and at once forbade the ministers to mingle in politics. The ministers then refused to hold communion at Easter, on account of the prevailing immorality; they further refused to restore certain church festivals, to use the baptismal font, and to give unleavened bread in the supper, though a Lausanne council had recommended these things. Calvin was personally not opposed to these rites, but went with his colleagues. Thereupon, April 23, the council banished Calvin and Farel, who departed, saying, "It is better to obey God than man." Zürich and Bern interceded for them in vain; a popular assembly, May 26, confirmed the decree of the council. And Calvin, though he "loved Geneva as his own soul," was glad to return to the life of a student. Expelled from Geneva, he was welcomed at Strasbourg by Bucer. A church of 1,500 French refugees was put under his charge, and adopted his discipline. The city gave him the right of citizenship, afterward prolonged for his life. He was present at the conference between the Roman Catholics and Protestants in Frankfort, 1539, and in that of Worms adjourned to Ratibon in 1541. Here it was that Melancthon gave him publicly the title of "the theologian." He pre-

pared a treatise on the Lord's Supper (*De Cena*), after a conference with the Lutherans at Hagenau, in 1540, in which he developed his view, intermediate between the Lutheran and Zwinglian, asserting that Christ was spiritually present and spiritually received in the eucharist. He also lectured and published on the "Epistle to the Romans," having modern Rome always in view; since Augustine no commentator had entered more fully and directly into the logic of Paul's argument. Crowds of students, from all parts of France, flocked to his lectures on the "Romans," and on John's Gospel. He was scattering seed far and wide. Here, too, in 1540, he was married to Idelette de Bures, the widow of an Anabaptist, whom he had turned from the tenets of that sect. He had previously refused an alliance with a lady of rank, fearing the disparity of position. Another matrimonial project enlivens some of his epistles. But in Idelette he found a most faithful and devoted wife, "who never opposed me," he says, and "always aided me," a *gravis honestaque femina, et lectissima*. A son, who died in infancy, was the only fruit of this marriage. "God gave us," said Calvin, "a little son—he took him away." Idelette died in 1549, and her stern, hard, overworked husband speaks of his solitude and grief in several touching letters, still extant. To Viret he wrote: "Knowing, as you do, the tenderness, or rather the weakness of my heart, I need not say, that only the strongest effort of mind could alleviate my anguish or keep me from sinking." He was never married again; and 7 years later, in an epistle of condolence, he dwells anew upon his deep-felt grief.—Two years had now passed since Calvin had been driven out of Geneva, and the city had need of him. He had still continued to cherish its welfare, advising his friends to moderate counsels. When Cardinal Sadoleto wrote to the Genevese to entice them back to Rome, Calvin replied with such wisdom as extorted praise even from his opponent. The Anabaptists were again restless. Disorders and tumults increased. Of the 4 syndics who had procured Calvin's expulsion, one had been hung as a traitor, another was killed in an attempted flight, the other 2 had been driven away. As early as Oct. 22, 1540, the council had vainly urged the disciplinarian to return; to another solicitation he replied: "The Genevese would be insupportable to me, and I to them." The city procured the intervention of Bern and Basel; Bucer and Farel entreated; the city of Strasbourg at last allowed him to go, continuing his salary, which he refused to receive; and Calvin yielded, "offering to God his slain heart as a sacrifice, and forcing himself to obedience." He returned to the city with the acclamation of the people, Sept. 18, 1541, and not only was a "plain house" provided for him, but also "a piece of cloth for a coat." He returned with the full and fair understanding that his discipline was to be carried out. His idea of the proper power and purity of the visible church was

much higher than that of his contemporary German reformers; Möhler accuses him of borrowing it from the Roman Catholics. To have a reformed church was his ideal. That reform must embrace not only doctrine and ritual, but also the whole life. The most thorough expounder of original sin was the most determined opponent of all actual transgressions. The strictest advocate of Divine sovereignty insisted most strenuously upon man's rigid obedience. The church was the great institution for the regeneration of human society. "Man cannot enter into life unless he be born of her womb, nourished at her breast, and kept under her fostering care." The ministry is divinely appointed. Synods of pastors and elders are for the preservation of truth and order. The state is to aid, and not to rule, this spiritual institution, though both church and state concur in the sphere of morals. Rules of discipline conformed to these radical views were adopted by the whole people, Nov. 20, 1541. The presbyterial system was fully inaugurated, which became a model for the government of the reformed churches in other countries. The consistory had twice as many elders (12) as ministers, and these elders were annually elected by the church. The system of representation was thus established, so fruitful in the subsequent political history of Europe. The consistory met every Thursday to consider cases of discipline. A congregation assembled on each Friday for practical religious improvement. The general council elected by the people continued its functions; but it assembled only twice a year, and the real power was gradually absorbed by the lesser council and by the consistory. The latter was the real tribunal of morals, and its inquisitorial sphere extended to the whole population. It could not punish beyond excommunication; but the civil power was expected to do the rest. The system was a bold one, and for a time eminently successful. Accusations, often frivolous, increased. In 1558-'9 there were 414 citations before the consistory. Severe penalties were often inflicted for slight offences; once a person was punished for laughing while John Calvin was preaching. But the effect upon the city was marvellous. It became the most moral town in Europe. It was also the home of letters and the bulwark of orthodoxy. Hooker says: "The wisest that time living could not have bettered the system." Knox, who was 8 times at Geneva, 1554-'8, declared that "it was the most perfect school of Christ since the days of the apostles." And Montesquieu exhorted the Genevese to celebrate as festivals the day of Calvin's birth, and the anniversary of his arrival there. In 1541 Calvin was also appointed on a commission to codify the laws of the state; the code was adopted Jan. 10, 1548. Here, as in the church, the government was aristocratic, with severe penalties. Ancillon says that his "labors for the civil law gave him a higher title to renown than his theological works." The same year he published a new and revised liturgy, which was

made the basis of many other reformed liturgies. The public worship was ordered with extreme simplicity, all that appealed merely to the sense and imagination being excluded. Not that he was tenacious in opposition to "things indifferent;" for when consulted in 1555 about the English liturgy, then the occasion of troubles in Frankfort, though he replied that it contained *ineptia*, he added the adjective *tolerabilis*. Such power as Calvin now exercised could not be unresisted, except in a thorough despotism with a standing army. And Calvin had no money, no arms, no family influence, and he never flattered the passions. Beside, he was a foreigner, a Frenchman. The disaffected patriots raised this cry against him, and named their dogs after him. This final opposition of the Libertines, both the political and moral ones, called out all the resources of his now indomitable will. Some of the Libertines were animated by a feeling of patriotic independence; others held to the gross views of the Familists; all joined in the opposition; blood flowed. Perrin was executed in effigy, in 1555, for trying to seize the government. Gruet was decapitated as a materialist, and an enemy of the state. Berthelier, a son of him who had headed the movement for independence against the duke of Savoy, was excommunicated; he appealed from the consistory to the general council, and the council acquitted him. The trial of strength came. All the clergy remonstrated against the decision of the council. Calvin appeared before the 300, and pleaded in vain for the independence of the church. The council still demanded that Berthelier should receive the communion. On the Sabbath, after the sermon, Calvin exhorted the church to partake of the sacrament; but thundered out that "he would sooner die than offer holy things to the excommunicated." Berthelier did not dare approach the table. The council postponed the final decision. The people in the streets still cried, "Slay the alien!" The contest continued for a whole year, but the party of Calvin was strengthened by the naturalization of a large number of Frenchmen, 300 at one time in 1557, and the authority of the reformer was insured. Yet it was far from being absolute even with the consistory. Though he had at one time obliged them to take off a light, and impose a heavy sentence upon Ameaux, who had libelled him, yet they often opposed his views; in one letter he complains that they even subjected his theological works to the censorship. These ecclesiastical and civil disputes were only a small part of his labors. He was also engaged in perpetual theological disputations. Bolsec, once a Roman Catholic and almoner of the duchess of Ferrara, now a convert to the reformed religion and a physician, disputed his doctrine of predestination. After a sharp controversy he was banished from Geneva, became again a Catholic, and wrote in 1577 a life of Calvin, filled with all manner of libels; asserting, for example, that when a young man he had been

branded for a crime against nature. This is refuted by the Catholic historians Masson and De May, though propagated by Richelieu. The Spanish and Italian anti-Trinitarians made much trouble at Geneva. Geibaldi was banished, Gentilis was led for a time to recant. Lelius Socinus came to Geneva even after the execution of Servetus, and subsequently corresponded with Calvin, on the doctrine of election. The most melancholy case was that of the Spanish physician Servetus, burnt at Geneva, Oct. 1553. The party of the Libertines tried to make use of him to defeat Calvin's influence. Calvin himself interceded in vain to have his punishment changed to decapitation. His condemnation was the act of the council, after a long deliberation, and in accordance with the expressed opinions of other cantons. Bullinger and Melancthon sanctioned the deed. The execution was in accordance with the laws of all the European states of the time. It was the inherited spirit of the times, and not the power of Calvin, that burnt Servetus. The penalty was cruel; it is indefensible; it was even at the time impolitic. But Calvin is to be here blamed, only as the whole legislation of Europe is to be blamed yet more severely. Neither civil nor religious liberty was yet understood; still less was there any sharp distinction made between them. That analysis was the fruit of time, and of the seed which Calvin was then sowing in Geneva. Among his other theological works was an "Antidote," in 1543, to 25 new articles of faith, drawn up by the Sorbonne; another "Antidote," in 1547, to the decrees of the council of Trent; a severe treatise on the "Freedom and Bondage of the Will," against the Roman Catholic Pighius, which had the rare controversial success of convincing his opponent. After prolonged discussions, Zurich and Bern united with Geneva (1549) in a consensus on the Lord's Supper; the Swiss churches generally acceded to it in 1551. But the Lutherans were enraged. Westphal aroused them to opposition. When Lasco's Reformed church was driven from England on Mary's accession, it could at first find no resting place in Denmark or Germany; Westphal called them "martyrs of the devil." Calvin made a fierce attack on him and Heshus, and rebuked with severity the silence of Melancthon. He could never understand how the Lutheran divines could make their peculiar views of consubstantiation necessary to church fellowship.—The most important part of Calvin's labors was in connection with the new academy of Geneva, inaugurated in 1559, and endowed by the liberality of Bonnivard. Such institutions of learning sprung up wherever the reform prospered. At Geneva there were chairs of Hebrew, philology, philosophy, and theology. Beza, the ardent friend and able successor as well as biographer of Calvin, of a generous humanistic culture, was the first rector of the academy. Calvin taught theology, without a title. Six hundred students were present at the opening of the institution

the auditors of Calvin sometimes numbered more than 1,000. The wood sent here from France, says one, was manufactured into arrows. Students flocked hither from Scotland, Holland, and Germany. From 6 to 4 in summer, and from 7 to 4 in winter, the classes were together, excepting at the dinner hour, which was from 10 to 11. The place became a focus for the reformed faith. Calvinism was dispersed all over Europe. Charles IX. complained that Geneva was the nursery of heresy. "There was not a single day of his life," says Sayous, "in which John Calvin was faithless to his apostolate." His labors were ceaseless and prodigious. Every other week he preached every day, and often on the Sabbath. His sermons were extemporaneous, short and simple, always cogent, solemn, and often tender. Three times a week he lectured on theology. Every Thursday he presided in the consistory, and on Friday he was present at the congregation. His commentaries cover the larger part of the Old Testament, and all of the New excepting Second and Third John, and the Apocalypse. Scaliger says: *Calvinus cepit quod in Apocalypsin non scripsit*. In philological accuracy surpassed by many expositors, none have entered more thoroughly into the inmost thoughts nor brought out more distinctly the logical coherence and true spiritual sense of the sacred writers. He never yielded to the seductions of allegorical interpretation. His commentaries on the Psalms and the Pentateuch, and on Paul's epistles, and his lectures on Job, stand in the front rank of biblical interpretation. The best modern school of philology is warmest in praise of Calvin's exegetical merits. So extensive was his private correspondence, and so numerous were the inquiries addressed to him from all parts of Europe, that many a night he had no time for sleep, and many a day he had no time to "look up to the light of the blessed sun." Men in the highest stations in Europe coveted a letter from his hand. Two of his commentaries were dedicated to King Edward of England. Archbishop Cranmer advised with him as an acknowledged minister of Christ, and as the wisest counsellor on the continent upon the affairs of England. A projected meeting of the reformers in England was interrupted by Edward's death. He went to Frankfort in 1556 to compose the trouble among the English refugees. The theology and the polity with which John Knox revolutionized Scotland were confirmed in the classes of Geneva. The counsel of Calvin was sought by the Moravians; to Hungary he wrote letters of advice. King Sigismund, of Poland, was one of his correspondents, and he was warmly enlisted in the Unitarian controversy of that land. But his chief influence outside of Switzerland was felt in France; its churches looked to him for counsel and received his creed and polity; Coligni greeted him as the leader of the reformation, and concerted with him the first Protestant attempt at missions, that of the Huguenots at Rio Janeiro, in

1556, which was, however, broken up in 1558. The wide influence thus begun in life was perpetuated after Calvin's death. His system of doctrine and polity has shaped more minds and entered into more nations than that of any other reformer. In every land it made men strong against the attempted interference of the secular power with the rights of Christians. It gave courage to the Huguenots; it shaped the theology of the Palatinate; it prepared the Dutch for the heroic defence of their national rights; it has controlled Scotland to the present hour; it formed the Puritanism of England; it has been at the basis of the New England character; and everywhere it has led the way in practical reforms. His theology assumed different types in the various countries into which it penetrated, while retaining its fundamental traits. In Switzerland it came to its culmination in the scholastic system of Turretin; but it breathes a freer spirit in the polemics of Stapfer. In France the school of Saumur advocated a general atonement. In the Palatinate, Calvinism was blended with the theology that Melancthon had taught at Wittenberg. In Holland, the five points were sharply presented, and Supralapsarianism partially defended; but here too the Cocceian theology of the covenants found a less abstract and a more historical basis for the system of divinity. The "Westminster Confession" combined the results of a century of controversy in an exposition, fuller than any continental symbol, and to which Scotland and the Presbyterian and Congregational churches of America have in the main adhered. But in the United States the system of Edwards has enlarged and liberalized the theology of Calvin. And in all these countries the love first of religious, and then of civil freedom, has been deeply implanted in the adherents of a theology which elevates man because it exalts God.—But with all his excellences, Calvin had also his faults and excesses. That countenance, in which, as Guizot says, was expressed "that firmness which makes no account of life, and that ardor which consumes," that severe and thoughtful visage reveals to us the man. He was severe, but more so to himself than to others. His temper was often impatient; it was hard for him, he says, to control "the wild beast." He wrote vehemently, in reply to ferocity. He tracked the foes who were intent upon his destruction. His aesthetic perceptions were dim; duty with him was the overmastering passion. He had not much time for the private affections, which are the solace of life; for life to him was a terrible combat. Yet he loved his wife tenderly; he grasped the hand of Luther with warmth, and would not let Bullinger retort his fierce attacks; Melancthon said to him, many a time, "that he wished he could only lay his weary head upon that faithful heart and die there." A man to whom Farel, Viret, Bucer, Bullinger, and, more than all, Theodore Beza looked up with such love, was no stranger

to the feeling of friendship. His theology was severe, because it was conservative and logical; it emphasized the divine holiness rather than the divine love; it made an abstract decree to take the central place, which only Christ can rightfully fill; but it is still the most complete system which the 16th century produced, nor has it been supplanted by any single work. The Roman Catholic Remond terms it "the Koran, or rather the Talmud of heresy." Bosquet, D'Alembert, Mignet, Paul Lacroix, and Nisard, all confess that it puts its author among the *grands écrivains*, and makes him one of the "glories" of French literature. Early in 1564 his body began to sink under his multiplied cares, and a complication of disorders, that had been wearing upon him ever since his youth, asthma, fever, colic, the stone, the gout, disease of the kidneys, and the hemorrhoids, assailed him with violence. He could hardly take any food, but still continued to dictate letters and comments on the book of Joshua. He began to preach a sermon on February 4, but was obliged to stop. On April 27, the lesser council met around his bedside to receive his parting words; the next day the ministers of the city and neighborhood listened, for the last time, to his affectionate and faithful counsel. Farel, now 80 years of age, journeyed from Neuchâtel once more to grasp his hand. Prayers were offered for him in all the churches. He lingered on in intense suffering, yet in the triumph of faith, until May 27, at 8 o'clock in the evening, when he breathed his last. He was buried in the cemetery of Plain Palais; at his own request, no monument marked the spot, and no one in Geneva can now tell where repose the remains of the man who made that city famous. His whole earthly wealth, 225 crowns, he bequeathed to his relatives and poor foreigners. His salary was 250 francs, and he would not receive that portion of it which accrued during his last illness.—The works of Calvin were first collected in the Geneva edition of 1617, in 12 vols. fol. The best edition is that of Amsterdam, 1671, in 9 vols. fol. The collected works of Calvin have been published in English by the Calvin translation society of Edinburgh, in 52 vols. 8vo, completed in 1855. His commentaries were published together in 1561, in 2 vols. 8vo. Tholuck edited his commentary on the New Testament, 1831-'4, Halle. The 1st Paris edition in French is now in the course of publication. His *Opuscula* were issued in 1562; the best edition is the Genevan of 1597. Parts of his correspondence appeared in 1576, in Beza's "Life of Calvin." Jules Bonnet is now (1858) editing a complete edition, after years of research; 2 volumes, containing nearly 800 letters, were issued at Paris in 1854, and, in English, at Edinburgh; 2 other volumes will complete the work. Beza, in 1564, wrote the life of Calvin. De May, in 1557, depicted his career from the Roman Catholic point of view. A publication directed against Boleac's libellous work appeared at Cleves in 1622. Waterman

and Dyer, 1850, have written his biography in English. The most complete account is given in Paul Henry's *Leben Johann Calvins, des grossen Reformators*, 3 Bds. 1835-'41, Hamburg; with a copious appendix of extracts from 544 letters, to which Dr. Henry had access. This work has been translated by Dr. Stebbing, omitting the appendix, in 2 vols. 8vo, London and New York, 1854. In Haag's *France Protestante* is a valuable *Notice sur Jean Calvin, sa vie et ses ouvrages*, with a full account of the various editions of his works. Audin's *Histoire de la vie des ouvrages et des doctrines de Calvin* (8d edition, Paris, 1845), has been translated into English and German, and is written from a Roman Catholic point of view. Among the other biographical sketches of Calvin must be mentioned one published by Herzog, in Basel, in 1843, and the famous sketch of Guizot, from which we have quoted, and which is to be found in the *Musée des protestants célèbres*. Among the more recent works which tend to throw light upon Calvin and his times, may be mentioned, Gabriel's *Histoire de l'église de Genève depuis le commencement de la réformation jusqu'en 1815* (Geneva, 1855).—For an account of the historical relations of CALVINISM, see REFORMED CHURCH.

CALVISIUS, SETHUS, a German musician and chronologist, born Feb. 21, 1566, died in Leipsic, Nov. 24, 1615. He was poor, and by his musical talents earned the means to visit several of the German universities, and made great progress in classical literature, astronomy, and the mathematics. He opened a musical school at Pforte, rather than accept a professorship of mathematics, which was offered to him by 2 universities. The reading of Scaliger's works induced him to engage in chronological calculations, and he organized a system of chronology, embracing the history of the world, upon a new plan. He also wrote upon the Gregorian calendar, proving its inadequacy, and proposing a new and more accurate system.

CALVUS, CAIUS LICINIUS MACKER, a Roman orator and poet, a son of the annalist and orator of the same name, born 82 B. C., died about 47. He left 21 orations, but few fragments survive. One of these against Vatinius, whose counsel Cicero was, produced so powerful an effect that the accused interrupted the orator and exclaimed, "Judges, am I to be condemned because my accuser is eloquent?" His poems ranked with those of Catullus.

CALX, a term formerly in use by the old chemists for designating the product of the oxidation of a metal, when heated in the air. Subsequently it was limited to lime prepared by calcination, and is now used in this sense in the pharmacopoeias. Its properties will be described under the head of LIME.

CALYMENE (Gr. *κεκαλυμμένη*, concealed, so named from the obscure nature of the genus), a genus of trilobites characterized by the faculty of rolling the body into the form of a ball, by bringing the two extremities of the

trunk together. In some rock formations they are found thus coiled up in great numbers. They are abundant both in this country and in Europe, their range being among the lower fossiliferous rocks. In some of the species the structure of the eye is beautifully preserved, showing that, in these earliest formed crustaceous animals of the most remote geological periods, the same provisions were made for adapting this member to the peculiar necessities of the animal, that are now seen in the complicated structure of the eye of the butterfly.

CALYPSO, a nymph of the island of Ogygia, on which Ulysses was shipwrecked. She fell in love with Ulysses and retained him for 7 years, until the gods compelled her to let him continue his journey; and the hero not having consented to reciprocate her love, although she promised him immortality if he would remain with her, she died of grief after his departure. Calypso was a daughter of Oceanus and Tethys, or of Nerens, or, according to Homer, of Atlas.

CALYX (Lat. a cup), in botany, the exterior floral envelope, consisting of a circle of leaves called sepals, which are commonly of green color. Sometimes, as in the anemone, when the corolla is wanting, the calyx has a brighter color and more delicate texture, and forms the most showy part of the flower.

CAM, Diæo, a Portuguese navigator, born in the second half of the 15th, died toward the beginning of the 16th century. He followed in the tracks of the discoveries made on the coasts of Africa under the infante Don Henrique and under Alfonso V., and passing Cape Lopo Gonçalves, and Cape Catharina, he introduced something like order into the chaos of geographical knowledge about Africa, by placing on the southern shores of the great river which is situated near those capes a *padrao*, or pile of stones, which henceforward served as boundary between the territories explored and those still unknown. He was the first to put himself into personal contact with the population of Congo, and leaving a few Portuguese sailors as hostages behind, he took some of the natives with him to Lisbon. This expedition, which took place in 1484, became of still greater service to science by the astronomical observations of the learned Martin Behaim, who accompanied it. When Cam left Congo, he stipulated with the natives to return within 15 months, and although on his arrival at Lisbon he was tempted by the brilliant reception of John II. to prolong his stay in the Portuguese capital, he returned immediately to Congo, to keep his faith with the inhabitants; and planting a second *padrao* in lat. 18° S., he penetrated as far as 22°, and on making his appearance at the court of the black king of Congo, he was not only received with every demonstration of cordiality, but the king sent an ambassador, Camta, with presents to Lisbon. Previous to his return to Africa, this dignitary became a convert to Christianity, the persons in his suite following his example, while the African king

manifested his willingness to Christianize his people, by asking for missionaries. The king of Benin made the same request, and Bemohi, an African prince, received the rites of baptism at Lisbon.

CAMACHO, or CAMAXO, a series of lakes in Brazil, connected with one another by natural canals. One of them is large; the others small. They are commonly named Jaguaruna, Gurupaba, and Santa Martha.

CAMAMU, a town, island, and bay of the province of Bahia, Brazil. The town, situated on the Acarahi, a river which enters the bay, is a place of some trade in rice, timber, and rum. The island, in the bay, is also called Ilha das Pedras, or "isle of rocks."

CAMANA, a town of Peru, and capital of a province of its own name. It is situated near the mouth of the river Camana, in the department of Arequipa. Pop. of the province in 1850, 14,419; of the town, about 2,000.

CAMANCHES. See COMANCHES.

CAMAPUAN, a river of Brazil, 70 miles long. It is one of the head streams of an affluent of the Paraguay, called the Tacuary or Taquari.

CAMARANCA, a river of Guinea, rises in the Kong mountains, flows 250 miles, and enters Yawry Bay, on the coast of Sierra Leone.

CAMARGO, a town of Mexico. It stands on the San Juan river, near its junction with the Rio Grande. Pop. 2,600.

CAMARGO, MARIE ANNE, a famous danseuse, born in Brussels, April 15, 1710, died in Paris, April 20, 1770. Her father, whose name was De Cuppi, was of an ancient Roman family; her mother belonged to the Spanish house of Camargo. De Cuppi made the arts of dancing and music a means of supporting his family, and brought up one of his children as a painter, another as a musician, and Marie Anne as a danseuse, in which art she was instructed by Mlle. Prévost, then the great oracle of the French ballet. On appearing on the stage at the Belgian capital, she delighted the public not only by her dancing, but still more by her beauty. She made her début at the opera in Paris in 1726, and became very popular. Finally the count de Melun fell in love with her, carried her off, and kept her and her young sister Sophia under lock and key in his hotel. Her father petitioned Cardinal Fleury, and insisted that the count should make a countess of Marie Anne, and provide a dowry for Sophia, but he succeeded only in obtaining her release from the custody of her lover. On her reappearance on the stage she was received with the utmost enthusiasm, and, with an interval of 6 years from 1734 to 1740, she remained attached to the opera until 1751, when she retired upon a pension of 1,500 francs.

CAMARGUE, LA, the name of an island in the S. part of the department of Bouches-du-Rhône, lying between the E. and W. arms of the Rhône; area, 250 sq. m. This island, which is in the form of a delta, is alluvial, and is in part covered by marshes and lagoons, the principal being that of Valcarès. The cultivated

portion is extremely fertile; game is abundant. Salt is formed naturally on the banks of the marshes, and is an important article of trade. A company is now engaged in draining the marshes.

**CAMARILLA**, a term of political application, implying a secret court influence, apart from the regular and publicly known agency of ministers of state and public functionaries. It is a Spanish word, meaning primarily a small room or closet, and is used as a term of reproach. Its origin is attributed to a period after the return of Ferdinand VII., but there is considerable probability that it was known in the same sense at a much earlier stage of Spanish history.

**CAMARINA**, a town on the S. coast of Sicily, founded by a colony from Syracuse, about 600 B. C. It was an exposed position in the Roman and Carthaginian wars, and was several times taken, retaken, and destroyed. Scarcely any vestiges of the ancient town remain.

**CAMARINES**. This name is applied to the whole of the S. E. peninsula of the island of Luzon; but it designates more especially 2 of the 20 provinces of the island, known as Camarina Norte, and Camarina Sur. The name, which in Spanish signifies a small chamber, is used in Manila to signify a porch or piazza; and as the palms for the construction of this portion of the European dwellings were obtained from the peninsula, it received this name from the Spaniards. The Camarines provinces are bounded N. by the province of Tayabas; S. by the province of Albay, which forms the southern extremity of the peninsula; E. by the Pacific ocean; and W. by the great bay of Ragay. The formation of the peninsula is volcanic; the Caraballos range of mountains extends its whole length, from N. to S., and 7 of its peaks are active volcanoes. The soil of the 2 provinces possesses the same remarkable fertility which accompanies all the volcanic formations throughout the archipelago. Tobacco, sugar, coffee, cocoa, and indigo, are largely produced for exportation; but the chief occupation of the inhabitants of the Camarines is the culture of the pineapple, and the manufacture of pina cloth. The official authority, *Informe sobre el estado de las islas Filipinas*, states that about 17,000 looms are actively employed in these provinces in the manufacture of pina cloth; which varies in quality, from the most delicate fabric, worth \$1,500 for a lady's dress, to the coarser tissue, suitable for a laborer's camisa, worth \$5. The women of the Camarines are esteemed the most skilful embroiderers in Luzon of the delicate pina. The skill of the women of these provinces is also singularly displayed in the working of gold and silver filigree. All the artificers in precious metals are women; and some articles of jewelry, especially their neck chains, are very beautiful and much sought for by strangers, European as well as Asiatic.—The agriculture of the Camarines indicates in some respects a degree of progress

beyond that of the other provinces of the island. The ox, and occasionally the horse, are used in ploughing, instead of the slow, unwieldy buffalo, so generally preferred by the native East Indian farmer. The Camarinians have also discarded the ancient plough, the primitive one in use among every semi-civilized people, formed from a single piece of crooked timber, with a point hardened by fire; and have substituted in its place a European style of implement, with iron coulter and a mouldboard. As an evidence of the advanced civilization and superior skill and industry of the inhabitants of these provinces, especially of Camarina Sur, we may state that official authorities, quoting the prices of real estate in Luzon, mention a *quinton* of land, a measure of 1,000 sq. fathoms, as worth in the Camarines, when fenced and irrigated, from \$350 to \$700; or on an average \$200 per English acre. The provinces have well-constructed roads; and many of the rivers are traversed by substantial stone bridges. The Naga river, which drains the lakes Bato, Baso, Buhí, and Iryga, and discharges into the bay of San Miguel, is navigable about 40 miles for vessels drawing not more than 18 ft. water. The industrial development of these provinces has been accompanied by a notable increase in population; and this being composed, with but small exception, of the brown race of the Philippines, which has yielded so readily to the influences of Christian civilization. The Camarines have not had their progress retarded, like other provinces of Luzon, by the troublesome presence of the wild negro race. In 40 years, the population of the provinces has doubled. Camarina Sur, pop. 115,575, and area 2,820 sq. m. Camarina Norte, pop. 28,329, and area 1,094 sq. m.

**CAMBACERES**, JEAN JACQUES RÉON DE, a French statesman, born at Montpellier, Oct. 18, 1758, died in Paris, March 5, 1824. He was educated to the bar, in which profession he won an early eminence, and was made a counsellor of the court of excise in his native place. At the opening of the revolution, he took an active part in politics, and was afterward sent as member first to the legislative assembly and then to the national convention. Placed on the committee on legislation, he rendered important services by means of his intimate knowledge of law, his sagacity, and his powers of generalization. During the trial of Louis XVI, it was on his motion that counsel were allowed to the king, and were also permitted to communicate with him freely. He voted for the condemnation of that monarch, but denied the right of the convention to adjudge him to an unconditional death. He was in favor of a provisional reprieve, and of death only in case of a hostile invasion. Through the dreadful reign of violence which followed, he is said to have endeavored to restrain the more arbitrary acts of the body, and to bring it back to strictly legislative measures; but he must have exerted himself rather cautiously, for he suggested the revolutionary

tribunal, prepared many of the worst laws, and acted with Marat, Robespierre, and Barrère. On Jan. 24, 1793, he was chosen secretary to the convention, and it became his duty, in the session of March 26, to report the treason of Dumouriez. The next year he presented a plan for a civil code, which was always a favorite project with him, but the republicanism of his principles, for some reason or other, became suspected, and he was not successful; nor was he appointed to the directory, a place which he desired. He secured a seat in the council of 500, however, where he renewed his efforts in behalf of a civil code (1796), which was subsequently made the basis of the code Napoleon. After the movement of the 80th Prairial, of the year VII (June 18, 1799), he accepted the office of minister of justice under the directory; but assisted Bonaparte in the *coup d'état* of the 18th Brumaire, was made 2d consul, and entered upon the discharge of the duties of this office in December. He attached himself warmly to the interests of the great captain ever afterward, and remained his instrument and friend long after many others, who began with him, had deserted, and as long in fact as Napoleon had the means of rewarding his devotion. On the elevation of his leader to the imperial dignity, he became arch-chancellor of the empire, in which capacity he had to communicate all the emperor's measures to the senate, many of them not very palatable, but he did it with becoming grace. The grand cordon of the legion of honor and many distinguished foreign orders fell to his lot, and in 1808 he received the title of duke of Parma. He presided over the discussions of the civil code, assisting the committee largely by his legal knowledge, his judgment, and his long previous study of the subject. During the campaign of Napoleon against the allied powers, in 1813, he was president of the council of regency; but on the approach of the allies in 1814, he repaired to Blois, and from that place sent in his assent to the recall of the Bourbons. For a while afterward he lived in retirement, until Napoleon's escape from Elba, and reassumption of power, placed him once more in office. He acted as minister of justice, and president of the chamber of peers. At the restoration he retired again, taking up his residence at Brussels, where he was permanently exiled, as one of those who had consented to the death of Louis XVI. In 1818, however, he was pardoned and recovered all his political and civil rights. He was an shrewd and able politician; popular because of his courtesy and grace and the hospitality of his entertainments; but like many other leading men of the period in which he lived, facile in principle, and the willing instrument of the superior genius of Napoleon, in working his evil as well as his good designs. He was an accomplished jurist, but he knew also how to clothe schemes of rapacity in legal forms; and from having been an extreme Jacobin in the revolu-

tion, he became a no less extreme aristocrat, eagerly reviving all the titles and ceremonies of the ancient régime. As a diplomatist he was distinguished, and his skill helped Napoleon in more than one emergency.

CAMBAY, a seaport town at the head of the gulf of Cambay, Baroda, Hindostan; pop. about 37,000; has a trade, gradually declining, however, in cotton, grain, ivory, and articles in blood-stone and carnelian. A great part of the town is in ruins, but it contains a fine mosque, some Hindoo temples, and a curious subterranean Buddhist temple.—THE GULF OF CAMBAY, on the W. shore of Bombay, is 73 m. long and 32 m. wide at its entrance. It receives the waters of the Nerbudda, Dhadar, Mhya, Subbermuttee, and Bhadar rivers, and its tides are rapid and rise to a great height. The gulf is gradually becoming shallower.

CAMBAY STONES, a name given to agates, carnelians, and other stones of this nature, which are procured from Cambay, a district in India, and imported in large quantities into Great Britain. See CARNELIAN.

CAMBERWELL, a suburb of London, and a parish, Surrey, England; pop. in 1851, 54,667. Portions of it are densely populated, but Denmark hill, Herne hill, Dulwich, and some other parts, are occupied chiefly by detached villas. It has a handsome church, several chapels of ease, a new college, &c.

CAMBIASO, LUCA, called LUCETTO DA GENOVA, a Genoese artist, born in 1527, died in Madrid, in 1585. His best works are the "Martyrdom of St. George" and the "Rape of the Sabines." Late in life, at the invitation of Philip II., he visited Madrid, and executed a fine composition, representing the "Assemblage of the Blessed," on the ceiling of the Escorial.

CAMBINI, GRUSEPPE, an Italian musical composer, born in Leghorn, Feb. 13, 1746, died at Biètre about 1832. He composed over 60 symphonies, beside innumerable concertos, oratorios, and pieces of instrumental music. Those adapted for the violin were his most successful productions.

CAMBODIA. See ANAM.

CAMBODIA RIVER, or MEKONGE, the largest of all the rivers in the Indo-Chinese territories, descends from the mountains of Yunnan, traverses the territory of Cambodia from north to south, and divides into a number of arms before reaching the sea, so as to form several large islands at its mouth. Its banks are low and sandy, and its extensive valley is annually inundated and fertilized by the overflowing of its waters.

CAMBOGIA, the synonyme in the pharmacopoeia of GAMBogia, or GAMBoge, which see.

CAMBON, JOSEPH, a French statesman, born June 17, 1754, at Montpellier, died in Brussels, Feb. 15, 1820. Engaged in commercial pursuits, he became interested in the revolution, and on hearing of the flight of Louis XVI. he caused the republican government to be pro-



claimed in his native town. He was sent to the legislative assembly, and while supporting the cause of democracy, gave particular attention to financial matters. Most of the great measures which enabled the government to get through the revolutionary period were suggested or controlled by him; and to him the honor is due of having laid the foundation of the modern financial system of France. He promoted the confiscation of the estates of the *émigrés* in 1792, and made, after August 10, a report in which he argued that Louis XVI., having held a secret correspondence with the enemies of France, was guilty of high treason. He presided over the last sittings of the legislative assembly, and afterward took his seat as a member of the convention. Here he opposed with equal energy the partisans of monarchy and of terrorism. He accused both Dumouriez and Marat. When Louis XVI. was arraigned before the convention, he voted for his immediate death, and against the appeal to the people. He opposed the creation of the revolutionary tribunal, and insisted upon trial by jury. At the opening of the convention, he had been appointed member of the committee on finances; April 7, 1793, he entered the committee of public safety. On June 2, when the Girondists were threatened by the infuriated mob calling for their proscription, he boldly took his place among them, hoping to be able, through his popularity, to save them from violence; he then opposed to the last the decree ordering their arrest, and he seemed so much grieved by its adoption, that it was thought for a moment that he would not reappear in the assembly. He did not, however, desert his post, and continued to fulfil his duties with untiring activity. In July, 1793, he presented, in the name of the committee on public safety, the report on the general situation of affairs. The next year he made another report on the administration of finances, which is considered a masterpiece of financial ability, and gives a full sketch of the plan which was afterward adopted for the regular registration of public debt. In the conflict which brought on the revolution of the 9th Thermidor, Cambon took part against Robespierre and his adherents; but though he had been instrumental in their defeat, he was charged with having been their accomplice, and a warrant was issued against him. He succeeded in baffling the search for him, and on the amnesty proclaimed by the convention on their adjournment, he retired to an estate in the vicinity of Montpellier, where he devoted himself to agriculture. In 1815 he was elected a member of the chamber of deputies. On the second return of the Bourbons, he was not included in the bill of amnesty, and repaired to Brussels, where he spent his last years in retirement.

**CAMBOORIE**, or **KAMBURI**, a walled town of Siam, at the confluence of the See-sa-wat and May-mannoi rivers. It has a brick fort with 20 guns.

**CAMBORNE**, an English town in the county of Cornwall, 8½ miles N. W. from Penryn; area, 6,900 acres; pop. nearly 8,000. It is a neatly built modern town, and derives its importance mainly from its vicinity to very productive tin and copper mines. It has a handsome church, built in the later Gothic style, several dissenting chapels, and a free school.

**CAMBRAI**, or **CAMBRAY**, a fortified town of France, department of Nord, on the right bank of the Scheldt, at the head of the canal of St. Quentin, 105 m. N. N. E. from Paris. It was a place of importance when Cæsar conquered the country, and from its old name, Camaracum, its present appellation was derived. It was for a while the seat of a small Frankish kingdom, which was united by Clovis to his empire. During the middle ages it belonged to the counts of Flanders, and came afterward into the possession of the dukes of Burgundy, from whom it was transmitted to the house of Austria. Here the famous league against Venice was concluded in 1508, and a peace between Francis I. and Charles V. was negotiated in 1529 by Louise of Savoy and Margaret of Austria, known as *la paix des dames*. It was taken from the Spaniards by Louis XIV., in 1667, and confirmed to France by the treaty of Nimeguen. Fénélon was archbishop of Cambrai, and during the disastrous war for the succession of Spain devoted himself to the protection of the people of his diocese. In 1793 the town was vainly besieged by the Austrians. It was the birthplace of Dumouriez and Marshal Mortier. It has been long celebrated for its manufacture of fine linens and lawns, whence all similar fabrics are called in England *cambrics*, and which are still the most important branch of its industry. It also produces thread, cotton stuffs of various kinds, soap, and beet sugar. The principal public buildings are the cathedral, which is modern, the old one having been destroyed during the revolution, the city hall, and the theatre. A monument was erected here in honor of Fénélon. Cambrai has a communal college, a diocesan seminary, a library with 80,000 volumes, and several other learned and charitable institutions. Pop. in 1856, 21,405.

**CAMBRIA**, the Latin name for Wales, meaning the land of the Cymri, as the Welsh call themselves in their native tongue.

**CAMBRIAN SYSTEM**, the lowest classified group of fossiliferous rocks, lying next below the silurian. The Potsdam sandstone of this country is included in it by Lyell, and the sandstones and conglomerates of Lake Superior are referred by Logan to the same group, or possibly to one still older.

**CAMBRIC**, originally a very fine fabric of linen, named from Cambrai, where it was first made. The name afterward came to be applied to cotton fabrics of various qualities.

**CAMBRIDGE**, a city of Middlesex co., Mass., a suburb of Boston, lying W. of that city, and separated from it by the river Charles, which is nearly a mile in width. It was settled in 1631,

at first under the name of Newtown, by Gov. Winthrop, Deputy Gov. Dudley, and other prominent men, who designed to make it the chief town in Massachusetts colony. The annual election for governor was for several years held under an oak tree on the common. The Rev. Mr. Hooker and the Rev. Mr. Stone, graduates of Cambridge college, England, were the first settled ministers of the place, both of whom subsequently accompanied the Connecticut settlers in their journey through the wilderness, and founded Hartford. Mr. Hooker was settled in 1632, and soon had for parishioners the learned men of the colony, most of whom had graduated at Cambridge. In 1636 the general court appropriated £400 for the establishment of a public school at Newtown, which in 1638 was further endowed by the Rev. John Harvard, minister of Charlestown. In honor of the place where the chief men of the colony had received their education, the name of the town was changed to Cambridge, and the school was styled Harvard college. It is the oldest and most richly endowed institution for public instruction in America. The college buildings occupy about 14 acres of ground, which is laid out with much taste and care, and with its fine shade trees presents a charming appearance. (See HARVARD COLLEGE.)—Cambridge was incorporated as a city in 1846, and is divided into 8 distinct portions, more or less compactly settled: Old Cambridge, the seat of the college and the residence of literary, scientific, and wealthy men; Cambridgeport, and East Cambridge, the business portions of the city. Two bridges connect it with Boston, and one with Charlestown. The Boston and Lowell railroad and the Fitchburg railroad pass through East Cambridge. A horse railroad with several branches, and several omnibus lines, furnish accommodations for travel to Boston. The city is pretty regularly laid out in broad streets and avenues, and has many fine public buildings and private residences. Some of the college buildings are ancient, others of modern construction, elegant and ornate, and admirably adapted for the purposes designed. Many of the private residences are surrounded with highly cultivated grounds, lawns, flower gardens, and orchards. Many structures erected before the revolution are still standing, among others the house used by Washington for his head-quarters, now inhabited by Mr. Longfellow. The streets and college grounds are adorned with noble trees; conspicuous among them the Washington elm, beneath which the commander-in-chief assumed the command of the American army in 1775. The tree is probably of the native forest growth, and is still vigorous. The public schools are of a high order—primary, grammar, and high schools; in the last-named the languages preparatory to a collegiate course are taught. At Cambridgeport and East Cambridge a large amount of business is transacted. There are 5 banks with a capital of \$550,000; also 2 savings

banks, with deposits amounting to \$350,000. East Cambridge was formerly known as Lechmere's Point. Here the court house and gaol are situated; also, the extensive glass works of the N. E. glass co., on whose premises is to be seen the tallest chimney in New England, 240 feet in height. A great variety of manufactures are carried on. The value of articles produced in 1855 was about \$11,000,000; 60,000 tons of ice, valued at \$30,000, are exported from Fresh pond per annum; 8,154,000 lbs. of soap, valued at about \$600,000; 484,000 lbs. of tallow candles, valued at \$100,000; \$200,000 worth of brushes were manufactured in 1855; also, large values of bricks, tinware, confectionery, fireworks, wood-turning, and cabinet work. Many of the inhabitants find employment in Boston. The university printing office is the oldest printing establishment in America. It was started in 1639 by a Mr. Glover, who gave it to the college. A gentleman at Amsterdam gave the first font of type, 49 lbs. weight. The first thing printed was the "Freeman's Oath;" the next, an almanac for New England, calculated by William Pierce, a mariner; the next, a metrical version of the Psalms. The office is now noted for its superior style of typographical execution.—The cemetery of Mount Auburn is situated in Cambridge and Watertown. It includes about 100 acres of land, covered with a vigorous growth of forest trees. The tract is undulating, with bold eminences and beautiful dells. The highest eminence is 125 feet above the tide in the river Charles, which winds along at a short distance from its base. A round tower of hammered granite, with a lookout 70 feet from the ground, has been erected upon its summit. The grounds are laid out with curved avenues adapted to the inequalities of the surface. The walks are smoothly gravelled and bordered with ornamental shrubs and flowers. The burial lots contain about 300 sq. feet each, and on many of them are monuments of rare workmanship and elaborate design. The entrance is through a gateway of granite, in the Egyptian style of architecture. Among the monuments is one to Spurzheim, the phrenologist, erected through the munificence of citizens of Boston. It is of Italian marble, and after the design of Scipio's tomb at Rome. The cemetery was dedicated in 1831. The observatory connected with the university is on an eminence nearly a mile W. of the college grounds. The population of the town in 1790 was 2,115; 1800, 2,453; 1810, 2,323; 1820, 3,295; 1830, 6,072; 1840, 8,409; 1850, 15,215; 1855, 20,478.

CAMBRIDGE, the county town of Cambridgeshire, in England, 57½ miles from London by rail; pop. in 1851, 27,815. The town is in the centre of an agricultural district, and is remarkable for its excellent market. The buildings consist of the guildhall, a handsome modern structure, several churches, including St. Sepulchre, a round church, built in imitation of the church of the Holy Sepulchre at Jerusa-

lem, and consecrated in 1101, Addenbrooke's hospital, and several other handsome edifices. A school of art was established here in Aug. 1858. The town is on the river Cam, the ancient Granta, and was the site of a Roman station. King John gave Cambridge a guild, and the privilege of being governed by a provost of its own choosing, an office for which Henry III. substituted a mayor and 4 bailiffs. Cromwell thrice represented Cambridge in parliament. The borough of Cambridge is governed by 10 aldermen and 80 councillors, one of whom is mayor, and returns 2 members to the house of commons. There are places of worship for Wesleyans and Primitive Methodists, for Baptists and Independents, a grammar-school founded in 1615 for 100 scholars, and various charitable, educational, and literary institutions, among which there is an industrial school, a mechanics' institute, and the Philo union. Cambridge derives its chief glory from being the seat of the celebrated university of that name.

**CAMBRIDGE, UNIVERSITY OF**, an English seat of learning, of very ancient origin. The first authentic charter is said to be dated 15th Henry III. (1230), and even long before that time Cambridge is believed to have enjoyed a reputation for learning. The present university statutes were given by Elizabeth in the 12th year of her reign. They are the foundation on which all new laws are framed. The university consists of the following 17 colleges: St. Peter's, founded 1257; Clare Hall, 1326; Pembroke, 1347; Gonville and Caius, 1348; Trinity Hall, 1350; Corpus Christi, 1352; King's, 1441; Queen's, 1448, re-founded 1465; St. Catharine's Hall, 1476; Jesus, 1496; Christ's, 1505; St. John's, 1511; Magdalene, 1519; Trinity, the wealthiest college of them all, 1546; Emmanuel, 1584; Sidney Sussex, 1598; Downing, 1800. Each college is a corporate body, bound by its own statutes, but is likewise subject to the general laws of the university. Each of the 17 colleges furnishes members both for the legislative and executive branches of the government of the university. The former branch consists of a senate, which is divided into 2 houses—the regents' and the non-regents' house—and of the council of the senate, by which every university grace must be sanctioned before it can be brought before the senate. No degree is ever conferred without a grace for that purpose. The council consists of the chancellor, the vice-chancellors, 4 heads of colleges, 4 professors of the university, and 8 other members of the senate. The executive officers of the university are: a chancellor, a high steward, a vice-chancellor, a commissary, a public orator, the assessor, 2 proctors, a librarian, a registrar, 2 scrutators, 2 moderators, 2 pro-proctors, and various other officers. The university sends 2 members to the house of commons, which are chosen by the collective body of the senate. The present members (elected April, 1857) are Mr. L. T. Wigram and the Rt.

Hon. Spencer H. Walpole. The number of members of the university senate for 1858 is 4,656; of under-graduates or students, 1,518; and the total number of members inscribed on the books or boards of the university, 7,516. The branches of study pursued at Cambridge may be inferred from the following list of professors, namely: the Lady Margaret's professor of divinity; the regius professors of divinity, civil law, physic, Hebrew and Greek; 2 professors of Arabic, one of whom is appointed by the lord almoner; the Lucasian professor of mathematics; professors of moral theology or casuistry; chemistry, astronomy, and experimental philosophy; anatomy; modern history; botany; geology; astronomy and geometry; the Norrisian professor of divinity; natural and experimental philosophy; the Downing professors of the laws of England and of medicine; the professors of mineralogy, political economy, and music; and the Disney professors of archaeology, founded in 1851 by Mr. John Disney. Beside these regular professorships, there are various endowed lectureships. A board of mathematical studies was established in 1648; a board of classical studies in 1854; and a board of medical studies in the same year. The revenues of the separate colleges are large and are derived from endowments and fees, but those of the university are small, and hardly exceed £5,500 a year. The professors are paid from the university funds, or by the government, or from estates left for that purpose. The sum granted to them by the government was £1,053 in 1856 and the same amount in 1857. The caution money to be deposited preliminary to the admission to the university is £50 for noblemen, £25 for fellow-commoners, £15 for pensioners, and £10 for sizars. The matriculation fees are respectively £16, £11, £5 10s., and £1 6s. There are various degrees of payment for tuition, according to the degree and condition of the members, and slightly differing in the several colleges. The annual unavoidable average expenses of an under-graduate or student, are stated by the "Cambridge Almanac" of 1858 to be about £60, or \$300. The terms of the university are 3, viz.: Michaelmas, or October, begins Oct. 10, and ends Dec. 16; Lent, or January, begins January 13, and ends on the Friday before Palm-Sunday; Easter, or midsummer, begins on the 11th day (the Wednesday se'nnight) after Easter day, and ends on the Friday after commencement day. Commencement day is always the 1st Tuesday in July.—The degrees are conferred as follows: Bachelor of arts (B. A.) after 12 terms, 10 of which must be in residence. Privy councillors, relations of royalty, bishops, noblemen and their sons, baronets, and knights, are admissible after 7 terms. Master of arts (M. A.), 3 years after taking a bachelor's degree; bachelor in divinity (B. D.), must be M. A. of 7 years' standing. Persons admitted of any college when upward of 24 years old, are permitted to take the degree of

B. D. after 10 years (of which the last 2 years must be in residence) without having previously received any other degree, and are called "ten-year-men;" doctor in divinity (D. D.), must be B. D. of 5, or M. A. of 12 years' standing; bachelor in the civil law (B. C. L.), must be of 6 years' standing complete, and must reside the greater part of 9 several terms; doctor in the civil law and doctor in physic (D. O. L. and M. D.), must both be B. C. L. of 5, or M. A. of 7 years' standing; bachelor in physic must be M. A. or M. B. of some terms' standing after having been admitted M. B.; bachelor in music (Mus. B.), must enter his name in some college and compose and perform an exercise in his art; doctor in music (Mus. D.), generally a Mus. B., and his exercise is the same. The examinations take place in the Lent term in each year, are conducted by the moderators and by examiners appointed by the senate, and the course of study preparatory to the degree of B. A. comprises the principal branches of learning. The 1st university or "previous" examination (technically called the "little go"), takes place in the Lent term of the 2d year from that in which the student commences his academical residence, the subjects of examination being 1 of the 4 Gospels, or the Acts of the Apostles, in the original Greek, "Paley's Evidences of Christianity," and one of the Greek and of the Latin classics. The examination of bachelors of arts extends over 22 days; that of candidates for mathematical honors, technically called the mathematical *tripos*, lasts 8, and that in classical learning or classical *tripos*, 5 days. Examinations in moral and natural sciences (moral sciences and natural sciences *tripos*), have likewise been in operation, since 1857. At the close of the examination, a select number, 80 at least, are recommended to the approbation of the proctors, and their names are classed in 8 divisions, viz.: wrangler, senior optimes, and junior optimes, the highest of all being the senior wrangler for the year. The candidates are then admitted to their degrees by the vice-chancellor, after they have taken the oath of allegiance and supremacy, and of observing the statutes of the university, and having also declared that they are *bona fide* members of the church of England. A great number of exhibitions and scholarships are among the rewards which meritorious students receive from *alma mater*. Since the days of Newton, one of the great lights of Cambridge, this university has been considered more particularly the chosen seat of mathematical science, but the tendency to make it a stronghold of learning in all the various branches of science, has been increasing of late years, and questions have been lately raised as to the mode of education, both at Cambridge and Oxford, and the subject has been a matter of lively discussion in parliament. Among the eminent men who have studied at Cambridge, beside Bacon and Newton, are Coke, Donne, Barrow, Dryden, Middleton, and Lord Byron. Among the famous teachers were Archbishop

Whitgift, Bishop Wilkins, Isaac Barrow, and Richard Bentley. Many of the principal buildings and offices of the various colleges are of remarkable beauty and splendor, and above all, the Gothic chapel of King's college. The public buildings of the university consist of the senate house, the university library, the schools, the university or Pitt press, the observatory, the botanic garden, the anatomical, geological, and mineralogical museums, and the celebrated Fitzwilliam museum, for the establishment of which Lord Fitzwilliam bequeathed to the university the annual interest of £100,000 South sea annuities, and which contains a collection of books, paintings, and engravings. The university library has greatly increased, mainly through the munificence of George I. and II., and the number of printed volumes is now (1858) about 200,000. There are also about 8,000 manuscripts, which contain many remarkable works. The library of Trinity college contains nearly 43,000 volumes, including MSS. in the handwriting of Milton, Newton's copy of his *Principia*, Dr. Gale's Arabic manuscripts; it has received a recent addition of 4,800 volumes by a bequest of Archdeacon Hare, which is especially rich in German literature. The library of Corpus Christi college, St. John's college library, and the Pepysian library (so called after Samuel Pepys), also contain many ancient manuscripts and curious books. Beside the various resources of learning in the colleges, libraries, etc., there are 3 learned associations, viz.: a philosophical, an antiquarian, and an architectural society.

CAMBRIDGE, ADOLPHUS FREDERIC, duke of, born Feb. 25, 1774, in London, died July 8, 1850. He was the youngest son of George III., and the uncle of Queen Victoria. He entered the British army as ensign when 16 years of age, and completed his education at the German university of Göttingen. He returned to England in 1793. He leaned at first to the side of the opposition on the question of the French war, but afterward sided with the government. He took part in the campaign in the Netherlands (1793), and fell into the hands of the French at the battle of Hondschoote, but was soon afterward exchanged. In 1801-'8 he was employed in Hanover, vainly endeavoring to preserve it from occupation by foreign powers. In 1816 he was again sent to Hanover by the British prince regent, in the capacity of governor-general, and in 1831 was appointed viceroy of Hanover. In 1837, on the separation of Hanover from the British crown, he returned to England again. From that period until his death he was best known to the public as the president of charitable societies, and the chairman at the anniversary dinners of public associations.—CAMBRIDGE, GEORGE WILLIAM FREDERICK CHARLES, duke of, a British general, son of the preceding, and cousin of Queen Victoria, born in Hanover, March 26, 1819. He became colonel in the army in 1837, and major-general in 1845. In 1850 he succeeded his father as

duke of Cambridge, in 1854 was advanced to the rank of lieutenant-general, and in 1856 to that of general. He commanded the 2 brigades of Highlanders and guards which formed the first division of the army sent to the Crimea. He led these troops into action at the battle of Alma, and at Inkerman had a horse shot under him. Directed by his physician to withdraw for a time from camp life, he retired first to Pera, and soon after to England. On the resignation of Viscount Hardinge in July, 1856, he was appointed commander-in-chief of the British army.

**CAMBRIDGESHIRE**, one of the agricultural counties of England; area, 898 sq. m.; pop. in 1851, 185,405. The general aspect of the county is flat; in fact, it has been redeemed for agricultural purposes, and forms part of the great Bedford level. The rivers are the Ouse, the Nen, the Lark, and the Cam, all small, but rendered useful for inland navigation. The county is traversed by several railways and main roads, but the internal traffic is inconsiderable. The history of Cambridgeshire is interesting in the early times for the resistance offered by the Saxons in the isle of Ely to the Normans. They succeeded for a considerable time in maintaining their independence, notwithstanding the force which William in person brought against them. In the civil wars Cambridgeshire was generally favorable to the parliament, while the university supported the cause of the king.

**CAMBRONNE**, **PIERRE JACQUES ÉTIENNE**, baron, a French general, born Dec. 26, 1770, at St. Sébastien, near Nantes, died in the latter city, Jan. 8, 1842. He served in the Vendée under Hoche, then in Switzerland under Masséna, entered the imperial guard, and was renowned for intrepidity. When the emperor was sent to Elba, Cambronne went with him, and during the Hundred Days he received the rank of lieutenant-general, and a seat in the senate. At Waterloo he was in command of the imperial guard; and when the day was lost, being surrounded by his enemies and summoned to surrender, he refused, and fell covered with wounds. He was taken from among the dead, nearly dead himself, carried to Brussels, and afterward to London; but having been charged in France as guilty of an attack on his own country, he gave himself up as a prisoner and demanded a trial. He was tried and honorably discharged. After the revolution of July, 1830, although almost disabled by age and wounds, he was reinstated among the staff officers of the army.

**CAMBYSES**, the second Persian king, succeeded his father Cyrus 529 B. C., died 522 B. C. He is the Ahasuerus of Scripture, who is mentioned (Ezra iv. 6-22) as prohibiting the Jews from rebuilding their temple. In 525 B. C. he conquered Egypt, and took Psammenitus, its king, captive. He then desired to attack Carthage; but the Phœnician fleet, which formed the bulk of his navy, refused to molest

their own colony. An army sent to take possession of the temple of Jupiter Ammon perished in the sand, and another army, led by Cambyses himself against the Ethiopians, was reduced by hunger and disease. These disasters exasperated Cambyses. He put his brother Smerdis to death, killed one of his sisters, who was (contrary to Persian law) also his wife, because she mourned for Smerdis, and treated the Egyptians with great cruelty. He gave orders for the destruction of many Egyptian sacred monuments, and slew the god Apis. He decreed the death of Croesus, the ex-monarch of Lydia, attended at the place of execution, and burst into tears. The officers suspended their operations. Cambyses advanced and embraced Croesus, but ordered the instant execution of the officers for disobedience. These and other eccentricities caused an insurrection among his officers, who espoused the cause of a pretended Smerdis. Cambyses set out against the pretender, but died from a wound accidentally inflicted by his own sword.

**CAMDEN**, the name of counties in several of the United States. I. A south-western county of New Jersey, separated from Pennsylvania by the Delaware river, and comprising an area of about 220 sq. m. The surface is generally level, the soil of the E. part sandy, and that of the W. a rich loam, yielding quantities of fruit and vegetables for the Philadelphia markets. The productions in 1850 were 259,684 bushels of Indian corn, 307,869 of Irish potatoes, 65,191 of sweet potatoes, 12,946 tons of hay, and 299,856 lbs. of wool. There were 2 founderies, 1 locomotive manufactory, 5 glass works, 11 flour mills, 1 paper mill, and 28 saw mills, 85 churches, 8 newspaper offices, and 3,639 pupils attending public schools. Most of the manufacturing establishments are in the E. part of the county. The Camden and Amboy and Camden and Atlantic railroads traverse it. Formed from Gloucester co., in 1844. Capital, Camden. Pop. in 1855, 29,160. II. A north-eastern county of North Carolina, bounded N. by Virginia, S. and S. W. by Albemarle sound and Pasquotank river, and having an area of about 280 sq. m., part of which is occupied by the Dismal Swamp. It has a level surface and a fertile soil, well adapted to Indian corn, of which in 1850 it produced 863,000 bushels, beside 28,492 of sweet potatoes, and 4,880 of wheat. There were 5 shingle mills, 1 corn and flour mill, 7 churches, and 1,850 pupils attending public schools. Valuable forests of cedar and cypress exist, and the exportation of the lumber and other products is facilitated by the Dismal Swamp canal, 22 miles long. Value of land in 1857, \$573,738. Capital, Camden Court House. Formed in 1777, and named in honor of the earl of Camden, who defended the American colonies in the British parliament. Pop. in 1850, 6,049, of whom 2,187 were slaves. III. A south-eastern county of Georgia, bordering on Florida and the Atlantic ocean, bounded S. by St. Mary's river, intersected by the Santilla,

and having an area of 1,125 sq. m. It includes Cumberland island in the Atlantic, 18 miles long, 2 or 8 miles wide, and separated from the mainland by a narrow channel. The surface is level and the soil sandy. The productions in 1850 were 6,400,940 lbs. of rice (the greatest quantity produced by any county of the state except Chatham), 52,828 bushels of sweet potatoes, 68,478 of Indian corn, and 45 hogheads of sugar. There were 8 turpentine distilleries, 4 corn mills, 1 saw mill, 10 churches, and 115 pupils attending schools and academies. Value of real estate in 1856, \$378,592. Capital, Jefferson. Pop. in 1855, not returned; in 1850, 6,819, of whom 4,246 were slaves. IV. A central county of Missouri, drained by Osage and several other rivers, and having an area of about 600 sq. m., with an undulating surface and a tolerably fertile soil. Lead mines are worked near Osage river, which is navigable during a short time every year. The productions in 1850 were 256,054 bushels of Indian corn, 22,241 of wheat, 45,176 of oats, and 219 tons of hay. There were 5 corn mills and 6 saw mills. Capital, Erie. Pop. in 1856, 8,287, of whom 188 were slaves.

CAMDEN. I. A city, port of delivery, and seat of justice, of Camden co., N. J.; pop. in 1850, 9,479; in 1855, about 15,000. It is built on a plain on the left bank of Delaware river, immediately opposite the city of Philadelphia, with which it is connected by 5 ferries, and its proximity to which has greatly aided the growth of its population. The streets are regular, and intersect one another at right angles. There are many fine buildings; the principal public edifices are a court house and gaol, 2 railway depots, and 10 churches. There are 2 literary associations, an insurance company, iron foundries, ship yards, chemical and glass works, and a number of mills of various kinds. The city was chartered in 1831, and is divided into 3 wards, governed by a mayor and common council. Railroads connect it with New York, Trenton, Woodbury, and Absecon Beach. II. The capital of Kershaw district, S. C., 112 m. from Charleston, is situated in a fertile and productive region, on the E. bank of the Wateree river, which is navigable to this point by steamboats, and is crossed by a bridge near the town; pop. 2,000. Camden is a flourishing commercial place, cotton and turpentine being the staples of export; it communicates by railroad with Charleston. It contains 8 academies and several grammar-schools, 2 banks, 4 churches, an orphan society, a masonic lodge, and various other societies. It has witnessed 2 battles—one fought in Aug., 1780, between Gates and Cornwallis; the other in April, 1781, between Greene and Rawdon. A monument to Baron De Kalb was erected in 1825, of which Lafayette laid the corner stone. Two Indian mounds exist on the side of the town. III. The capital of Wilcox co., Ala., pop. 800, is a flourishing post village, the centre of an active trade, and the most populous town in the county. It stands on a healthy

eminence about 4 m. from Alabama river, and contains a respectable academy and 2 female seminaries. On several maps of the state it has been erroneously named Barboursville. IV. The capital of Washita co., Ark.; pop. in 1855, 1,400. It stands on a declivity of a range of hills, on the right bank of the Washita river, and at the head of navigation for large steamers. It is a handsome place, built in a very tasteful style, and possessing great advantages for trade. A plank road, to connect it with Fulton on Red river, is now in process of erection. It was formerly a rendezvous for hunters, known as *Ecore à Fabre*. It was settled in 1842, on the site of a dense forest, parts of which are still standing. The growth of the town has been very rapid, and it still continues to increase in size, population, and importance.

CAMDEN, a south-eastern county of New South Wales, bordering on the Pacific, and covering an area of 1,400,320 acres. It has an uneven surface, beautifully diversified by hills, valleys, and picturesque lakes. It is well watered by small branches of the Cowpasture, Wingecarabee, Shoalhaven, and other rivers, has many fertile tracts, and embraces a variety of fine scenery. One of the richest parts of the county is a district known as the "Cowpastures," so called from large herds of cattle found there, which sprang from a few animals escaped from the settlements soon after the foundation of the colony. Capital, Berrima. Pop. 8,323.

CAMDEN, CHARLES PRATT, earl, an English judge and statesman, born in Devonshire, in 1714, died April 18, 1794. He was educated at Eton and Cambridge; was called to the bar in 1738, where after passing a long period without practice, his rise was at length sudden and rapid. In 1752, upon the prosecution of a printer for a libel upon the house of commons, Pratt maintained, in opposition to the ruling of the judge, the doctrine of the right of juries to decide upon the nature and intention of alleged libels. His position upon this occasion was the commencement of a contest which continued for 40 years, and it is mainly owing to his exertions that this doctrine finally became recognized as the law of England. In 1757 he was made attorney-general and knighted under Lord Chatham. In his place in parliament he conducted the law business of the crown satisfactorily but without display, and as the prosecuting officer he took the opportunity to proceed, before juries, upon his former construction of the law of libel. He also conducted with great propriety and moderation the trial of Lord Ferriers for murder before the house of lords. In consequence of the change of policy which took place on the accession of George III., Pratt was removed in 1762 to the chief justiceship of the court of common pleas, and accepted the appointment as a lasting retirement from public life. But the arrest of Mr. Wilkes, April 30, 1763, under a general warrant from the secretary of state and other similar cases, brought

the important political and legal questions concerning the legality of such warrants before that court, and in his judgments against them he was called upon to take a position in defence of the liberties of the subject. The principles which he then laid down were not only applied to check abuses at the time, but have ever since been considered of the first importance. In consequence of the great popularity thus obtained, he was raised to the peerage, July 17, 1765, under the name of Baron Camden. He distinguished himself at once by his exertions in behalf of the American colonies, and on the formation of Lord Chatham's 2d administration he was made lord chancellor, July 30, 1766. He held this office for 8½ years, discharging his duties as a judge with universal approbation, but occupying, as a minister, a precarious and doubtful position in relation to the American policy of the cabinet. However, upon the resignation of Lord Chatham he hastened to free himself from complicity with their measures, and was removed from his place Jan. 17, 1770. From this time until the close of the American war he continued in opposition to the government of Lord North, both upon its domestic and foreign policy, the treatment of Wilkes and of the colonies; and distinguished himself by the memorable eloquence with which he contended in parliament for the just demands of the Americans and the pacification of the empire. Soon after the trial of Woodfall, the printer of Junius's letters, in 1770, before Lord Mansfield, he was engaged in a personal controversy with the latter, in relation to the charge to the jury upon that occasion, upon the old question of the law of libel, in which he obtained a decided superiority. After the resignation of Lord North's ministry in 1782, he was made president of the council, but resigned the next year on the accession of the "Coalition Ministry," and enlisted under the banner of the younger Pitt. The success of this minister led to Camden's restoration to the same office which he peacefully filled for 9 years. He was created Earl Camden and Viscount Bayham of Bayham abbey, Sussex co., May 13, 1786; and still took a considerable share in the business of the house of lords, notwithstanding his advanced age. In 1792, a short time before his death, he had the satisfaction of pressing the passage of Mr. Fox's declaratory libel bill through the house of lords, against all the ingenuity of Lord Thurlow, who had procured a unanimous opinion of the 12 judges against it. He had contended for its principles throughout his life, and its final success was mainly attributable to his courage and vigor.

CAMDEN, WILLIAM, a British historian and antiquary, born in London, May 2, 1651, died at Chiselhurst, in Kent, Nov. 9, 1623. In 1671 he quitted the university of Oxford, having previously been educated at Christ's hospital and St. Paul's school, and, prosecuting his studies in London, he was appointed in 1675 second master of Westminster school. During this pe-

riod he composed his celebrated work, written in elegant Latin, entitled *Britannia*, which was published in 1686. An English translation, by Dr. Holland, appeared in 1610, and a later edition in 1687, and new translations by Edmund Gibson, afterward bishop of London, in 1695, and afterward by Mr. Gough, the eminent topographer. In these editions large additions and changes were introduced, so that the work in its English dress little resembles the original. In 1592 he became head master of Westminster school, and in 1597 was made Clarencieux king at arms. His next great work was the "Annals of the Reign of Queen Elizabeth," also written in Latin; the first part of this was published in 1615, and though it was completed within the next 2 years, he determined that the 2d volume should not appear until after his death. He commenced a history of the reign of James I., which he did not live to complete. He wrote many other works, among which was a Greek grammar published in 1597, and used at Westminster school. He was interred in Westminster abbey, where a monument with his half-length statue, the left hand resting on "*Britannia*," still remains. The Camden professorship of history at Oxford derives its name from Mr. Camden, who devoted the greater part of his estate to its foundation.

CAMEL (*camelus*), a genus of ruminant animals, without horns. The name of this animal is nearly the same in the languages of all civilized nations, from the Hebrew, Arabic, and Greek, down to the modern tongues spoken at the present day. It appears to have been nearly, if not absolutely, the first animal that was reduced to the service of man, or it divides that claim with the only other creature which can compare with it in patient endurance of fatigue and privation, the much slandered and cruelly abused ass; both having long preceded the horse in their services to the human race. Unlike the ass, however, which still exists in a wild state in the central regions of Asia, so far south as to the northern limits of India, the camel cannot be assigned to any land, locality, or climate, in which it has ever, certainly, existed in a wild condition. Diodorus and Strabo, indeed, mention it as being found wild in the interior of Arabia; while Desmoulins, who has left some valuable contributions on this subject, asserts that it so existed as lately as in the time of Hadrian. It is said also, by the natives of Central Africa, that camels are there to be found wild, in regions never trod by a European foot; while statements of the same kind are current among the Tartars and Bucharians in relation to Central Asia. In all these cases, however, there is much reason to believe that where they do exist in a state of nature at this time, or did so exist formerly, they are, like the wild horses of America, descendants of animals which, once domesticated, have been accidentally or purposely liberated by their owners; and in some cases the Calmucks are known to be still in the habit of liberating domestic

animals of all kinds, from religious scruples. The countries over which the camel is now the most widely distributed, are Arabia, Persia, the south of Tartary, some parts of India, Africa from Egypt to Mauritania, and from the Mediterranean to the river Senegal. It is numerous in the Canary islands, but is found in Europe only in the vicinity of Pisa, in Italy, where the arid plains and stunted bushes of San Rossora bear some resemblance to the desert regions of Africa. It is doubtful at what period, or by whom, the camel was first introduced into Tuscany; but there is no doubt that in that country it is in rapid progress of deterioration. Within the last few years, the camel has been introduced into the southern parts of the United States of America, as a government experiment, for its employment in strategical purposes, and for the conveyance of supplies, munitions of war, provisions, and stores, to the isolated garrisons beyond that dreary tract known as the great salt desert, and the other barren plains, producing no forage but stunted artemisias and other arid and bitter herbs, on which horses and oxen cannot be supported, and less than sparingly supplied with water. They are understood to be at present in process of acclimatization, in Texas, where they have lately been subjected to the severest tests, by long marches, heavily loaded, and depending on the scanty forage and water found by the way, during the surveys in progress in that arid region; and the result is reported as satisfactory even beyond expectation.—That the camel was domesticated from the earliest times, is put beyond doubt by the continual mention made of him in the very earliest books of Holy Writ; as it is related of Abram, when he went down into Egypt to sojourn there during the famine, that among the wealth he there acquired were "sheep, and oxen, and he-asses, and men-servants, and maid-servants, and she-asses, and camels;" whereas horses are not named until 8 generations later, when in the time of the stewardship of Joseph, among the valuables which he received in exchange for corn, horses are, for the first time in history, enumerated. The use to which the camel was applied, even at that early period, for purposes of commercial intercommunication and desert travel, is clearly shown in the story of Joseph himself, long before the days of his advancement, whose brothers, after they had cast him into a pit that was in the wilderness, "lifted up their eyes, and looked, and behold, a company of Ishmaelites came from Gilead with their camels, bearing spicery, and balm, and myrrh, going to carry it down to Egypt." And so for years, and hundreds of years, he has continued to be employed, and so, doubtless, will continue to be, until steam and railways shall have traversed all lands, and brought animal transportation into neglect and disuse.—Zoologically, the camel is divided into 2 species: the Bactrian camel (*camelus Bactrianus*), which has 2 humps, and is the camel proper; and the

Arabian, or one-humped camel (*camelus Arabicus*), sometimes improperly called the dromedary. Improperly, because the word dromedary is merely a Greek term applied to one particular variety of the Arabian camel, and that probably an accidental one, in consequence of its extraordinary speed; dromedary in Greek being equivalent to courser in English, which quality no more belongs to all Arabian camels than it does to all thoroughbred horses. Camels have 34 teeth: 16 in the upper jaw, namely, 2 incisors (for the camels and llamas have these, and form the exceptions, the other ruminants being without any incisors in the upper jaw), 2 canines, 12 molars; 18 in the lower jaw, namely, 6 incisors, 2 canines, and 10 molars. The incisors of the upper jaw bear a close resemblance to canine teeth, for they are conical, compressed at the sides, pointed, and somewhat curved or hooked. There is another difference between the camels and the other ruminants: the former have the scaphoid and cuboid bones of the tarsus separated. Instead of the great horny case or shoe which envelopes all the lower part of each toe, and determines the figure of the ordinary cloven hoof, the camels have only a small one, or rather the rudiments of one, adhering to the last joint of the toe, and symmetrical in form like the hoofs of the *pachydermata*. These and other peculiarities of form lead to the opinion that the camels and llamas form the link between the *ruminantia* and *pachydermata*. The limits of this work will not permit a close investigation of the anatomical and structural peculiarities of this curious and interesting animal; but that charming writer on zoology, Mr. William J. Broderip, has so agreeably combined an account of the most remarkable particulars, natural and historical, of the "ship of the desert," as he is poetically called by the natives of his arid wilds, to whom he is the one indispensable possession, more so than the reindeer is to the inhabitants of the far and frozen north, that no apology is needed for extracting some of his accounts and facts, slightly abridged, nor—those completed—for alluding, shortly, to a report to the department by a gallant officer, Major Wayne, in relation to the naturalization of the animal in the United States. It may be observed here that the camel is one of the animals set forth in the forbidden list in Leviticus, because he "cheweth the cud, but divideth not the hoof;" the object of which mysterious dispensation, no writer, physiological, zoological, or other, has hitherto, it is believed, been able even to divine. "Viewed with the eye," says the able naturalist alluded to above, "of even a comparatively careless observer, the camel presents one of the most complete instances of design with relation to human wants. There is not a part of its structure, from the bony framework of its skeleton to the external hair of its coat, that could be omitted without injury to the wonderful work, or improved. Those very parts which seem deformities are absolutely necessary to its well-being and destination, and the hump and callosities become



beauties, when examined with reference to the exigencies of the animal, and its condition as the slave of man. And here arises the question whether this hump and these callosities are natural formations, or due to the pressure of the loads with which the animal has for ages been burdened, and to the weight of the body. The callosities are 7 in number, and upon these the pressure of the body is thrown when the animal kneels and rises up. They have been observed upon a newly born camel; but no child is born with corns upon the toes and feet, whatever fashion and tight shoes may have done for the parent; at least I never heard of a baby who came into the world with those excruciating appendages. Not that it may not be admitted, that in a long course of years those marks of servitude, as they have been called, may have been more largely developed. Dr. Walter Adam, in his paper on the osteology of the Bactrian camel, remarks that the dorsal vertebrae of the animal on which he made his observations had been modified by the pressure of its loads. We know that, by careful breeding, the horns of the ox and the sheep may be made to assume almost every grade of excess or defect, until they vanish altogether, and a hornless race is obtained. Now, whether we look at the grotesque figure of the camel or investigate its internal structure, we find the most unmistakable evidence of adaptation to that state of life to which it has pleased the great author of its being to call it. Born for the desert, the callosities prevent the skin from cracking at those points where the weight of the animal rests upon the arid burning sands. The strong, nipper-like upper incisor teeth are fit instruments for cutting through the tough plants and shrubs, that spring here and there on those boundless wastes. The nostrils are so organized that the animal can effectually close them, and defy the stormy, destructive sand-drifts that sweep harmlessly by him. The 'desert ship' seems to float rather than step on the elastic, pad-like cushions of its spreading feet, moving as noiselessly as Mr. Marks's vulcanized Indian rubber wheel tires convey a carriage over a granite pavement. 'What always struck me as something extremely romantic and mysterious,' writes Mr. McFarlane, 'was the noiseless step of the camel from the spongy nature of his feet. Whatever be the nature of the ground—sand, or rock, or paved stones—you hear no footfall. You see an immense animal approach you stilly as a cloud floating in the air, and unless he wear a bell, your sense of hearing, acute as it may be, will give you no intimation of his presence.' Riley, too, observes the silent passage of a train of camels up a rocky steep, and accounts for the silence, because their feet are as soft as sponge or leather. The structure of his stomach enables the camel to digest the coarsest vegetable tissues, and he even prefers such plants as a horse would not touch to the finest pasture. He is satisfied with very little, and if he should be stinted even of this hard

fare, the fat hump contains a store of nourishment to be taken up into the system, and sustain it till it reaches some oasis of tough prickly bushes, which he discusses with the greatest relish; and, if the best of liquids be there, fills the water tanks with which his interior is fitted up, and goes on his way rejoicing.—Dr. Adam suggests that it is not improbable that the symmetry of the swift dromedaries will be found to be much more complete than that of the baggage camel. The load for the latter is variously stated; some make it 600, some 700, and others above 800 pounds; nay, Sandys says that he will carry 1,000. The swiftness of the dromedary, *el heiria*, or as most travellers call it, *maherry*, may be compared with that of the high-mettled racer, with more endurance. 'When thou shalt meet a heirie, and say to his rider, "Salem Alick," ere he shall have answered thee "Alick Salem," he will be afar off, and nearly out of sight, for his fleetness is like the wind.' A *sabaye*, said to be the swiftest of this breed, is good for 630 miles, 85 days of caravan travelling, in 5 days. Seven or 8 miles an hour, for 9 or 10 hours a day, is stated to be a common performance; and the late lamented Captain Lyon, whose accuracy was strict, relates that a northern African maherry's long trot, at the rate of 9 miles an hour, will endure for many hours together. —'Train up a child in the way he should go,' and, acting upon this principle, the camel drivers of some parts of Africa, Senegal, for instance, were wont, soon after the young camel was born, to tie its feet under its belly, throw a large cloth over its back, and place heavy stones upon each of the corners of the cloth that rested upon the ground. Thus did the Moors accustom the animal to receive the loads which it was destined to carry through a life of labor, generally prolonged to 20 years. Females, indeed, and such fortunate males as are exempt from work, are said to live to 25, or even 30 years. The European mode of training the camel is not commenced till it has attained the age of 4 years, when the trainers first double up one of the forelegs, which they bind fast with a cord; this they pull, and so compel the trainee to come down upon his bent knee. But all pupils are not equally docile; and, if this method should fail, as it sometimes does, both legs are tied up, and the camel falls upon both knees, and on the callosity which protects the breast. This operation is often accompanied by a cry and a slight application of the whip from the trainer; and, by degrees, the animal learns at last to lie down upon its belly, with its legs doubled under it, at the well-remembered cry and blow, accompanied by a jerk of the halter. Having attained so much obedience, the trainer proceeds to place a pack-saddle on the creature's back. When it is accustomed to this appendage, a light load is put on and gradually increased till it reaches the maximum, which is understood to be 14 kilogrammes, or above 800 pounds,

for a full-grown camel. Such is the mode practised at Pisa; and though the Moors brought the animal into Spain, Pisa seems to be the only locality in Europe where the camel is now bred.—But although success attends it, the breed seems to dwindle. The foal is obliged to be held up by attendants to take the material nourishment which, in a state of nature, the new-born creature must be in a condition to obtain without assistance, or the continuation of the species must cease.”—For those who desire to read a collection of the most agreeable anecdotes, and of curiously compiled historical facts, concerning the habits of the camel, its loves and antipathies, its employment as an animal of warfare by the ancients, the vast hosts collected in the armies of Semiramis, Cyrus, and Xerxes, their being harnessed to scythed chariots, the predilection of lions for their flesh in preference to that of any other animal, and the consequent impossibility of their successful introduction in northern Africa until the Romans had abolished the laws for the preservation of lions in that region, which was the great preserve of those cruel carnivora for the supply of the *circus maximus*, no book can be recommended equal to that already named, Broderip's "Leaves from the Note Book of a Naturalist." One other particular he notes, well worthy of observation, since the power of conveying water has been denied to the camel by many, and the possibility of extracting that necessary liquid from his stomach, after death, has been denounced as a falsehood. It now appears that, although the cavity, peculiar to the camel, may not deserve the name of a fifth stomach, and is used for the reception of the remasticated food, it yet contains a peculiar system of cells adapted to contain water, and provided with a reticulated apparatus for closing those cells while the dry food is in the water bag, which possesses precisely the qualities heretofore ascribed to it. "Then," says Mr. Broderip, "if we want extrinsic evidence, we have only to call one of the most truthful, amiable witnesses that ever left friends to lament him. Capt. Lyon, upon the occasion of a death of one of these animals, says, in his most interesting narrative: I never before had an opportunity of observing how water is procured from the belly of a camel to satisfy the thirst of an almost perishing caravan. It is the false stomach which contains the water, and the undigested food. This is strained through a cloth, and then drank, and from those who have been under the necessity of making use of the beverage, I learn that the taste is bitter. As the animal had recently drank, its stomach was nearly full."—From Major Wayne's report we learn several curious facts not mentioned above, in relation to the natural history of this singular beast, and have much valuable information concerning the progress and prospects of its successful naturalization in the United States. "The Bactrian species is found only," as a commentator on the report in the "Nation-

al Intelligencer" informs us, "on the southern border of Siberia, in a portion of Tartary, and in the Crimea, and is a much heavier build, stouter limbed, and stronger animal than the Arabian. From the difficulty of loading it, on account of its 2 humps, its usefulness as a beast of burden is limited. It is sometimes, however, used for draught, being yoked to a wagon as oxen are. The great value of this camel is as a breeder, for crossing the male Bactrian with the female Arabian, the produce being a powerful one-humped hybrid; and for this purpose it is kept throughout camel-land, as breeding stallions are with us. The Arabian camel, to which variety belong most of the specimens brought to this country, is found throughout camel-land, and furnishes beasts both for burden and for riding. Its powers and hardiness vary with climate and breeding, and as a general rule its strength and endurance are greater the further north it is found." Of the hump, Major Wayne speaks as follows: "This peculiar characteristic of the camel, viewed, when its purpose is understood, in connection with its ability to carry its own supply of water for several days, exhibits one of those wonderful adaptations by the Almighty of animals to country, that excite our admiration and reverence. Composed of gelatinous fat, it contributes a stock of provision that by reabsorption furnishes the animal with sustenance, when the nature of the country, or any other unfortunate contingency, deprives it of a supply of food sufficient for its exertions. Stored thus, by the wise arrangement of Providence, with water and food to meet, for several days, should necessity or misfortune require it, the exigencies of an arid and unproductive country, the camel has, not inaptly, been called the ship of the desert. So well is the use of the hump understood in the East, that the condition of the animal is judged of, and its improvement, after a long journey, measured by it. It is not uncommon to see camels come in, after long and painful journeys, with backs almost straight, exhibiting but little if any hump. Beyond this supplying with food by reabsorption, the hump does not seem to be intimately connected with the animal's vitality; for Lixat Bey informed me that he had repeatedly opened with a sharp knife the humps of his dromedaries, when from high feeding they had become so plump as to prevent the fitting of the saddle, and removed large portions of the fat, without in any manner injuring or affecting the general health of the animal." In regard to the usefulness and adaptation to one sort of labor of the Arabian camel, and the comparative unfitness for other modes of employment, Major Wayne's account is, perhaps, the most practical and complete of any that has hitherto been given to the public. "From its formation," he says, "the Arabian camel is calculated for burden, and not for draught, though it has been used occasionally for ploughing, and has been harnessed by the English in India to their field batteries. Its

deep chest and strong fore legs enable it to support well a load placed over them, but its narrow loins, and long, ungainly hind legs, deprive it of the force necessary for the longitudinal strain. Its additional joint, too, in the hind legs, by which it is enabled to kneel down, and take a position particularly suited to the packing of burdens upon its back and of readily rising with them, indicates unmistakably its particular qualifications for that kind of service. Unfitted by the formation of its nostrils and lungs for violent exertion, its long regular strides, however, with its capacity for continuous labor, enable it to make extensive journeys in comparatively good time. It is said, and I believe it, that the camel will, on emergency, travel at its regular gait for 60 successive hours without stopping. Formed rather for a level than a broken country, the camel meets without inconvenience a fair amount of mountain and valley, and is not distressed in ascending or descending moderate slopes although they be long. The foot of the camel, clothed with a tough skin which some assert to be true horn, enables it to travel with facility over sand, gravel, or stones. It will also stand a tolerable degree of volcanic debris or rocky soil, and aided by art—provided with a shoe of hide, iron-shod at the bottom, and attached round the fetlock joint—it traverses these impediments without difficulty, and also ice and snow. In wet, clayey, and muddy soils the camel moves with embarrassment, is apt to slip and slide in it, without the ability to gather itself quickly." Major Wayne also bears testimony to the good quality of the camel's flesh as an edible, representing it as undistinguishable from the best beef, and of its milk as not to be known from that of the cow either by flavor or color. Its capacity to carry weight on continuous journeys he estimates, for the strongest camels, at from 450 to 600 lbs., for the common kinds from 300 to 450 lbs.; and these they will carry from 18 to 80 miles a day, according to the character of the country, whether broken or level, over which they travel, moving for the usual daily travelling time of from 8 to 10 hours. With lighter loads, they will travel a little faster. The saddle dromedary, or swift riding camel, he thinks, will carry from 150 to 300 lbs. continually, travelling from 8 to 10 hours, about 50 miles a day. On emergency, they will make from 70 to 90 miles a day, but only for a day or two, over a level country. There are at the present time in the United States about 70 camels, brought over at 2 importations, the first of 33, the other of 41, the latter being by far the larger animals. The present grand duke of Tuscany has, according to the report, 250, which, although badly cared for, out of condition, and neglected, do the work of 1,000 horses; and here the camels are reported greatly to outdo either mules or oxen. The true land of the camel is not, as many persons suppose, the tropics, or their confines; but, rather, the

northern regions of the temperate zone. They thrive better, and are a larger, hardier, and stronger animal, in central Asia, than in Africa or Arabia, and are at least as impatient of extreme heat as of intense cold. Still, it is a matter of doubt how far they will endure the rigor of the overland California passage and the inclemency of the mountains; and it is more probable that their utility will be restricted to the southern routes to the Pacific.

**CAMEL**, a machine for partially lifting ships so as to float them in shoal water, as over bar. It was invented and first applied by the Dutch about the year 1688, in order to carry their ships over the sands of the Zuyder Zee. It consisted of 2 similar-shaped vessels about 137 feet long, 22 feet wide at one end, and 18 at the other. These being brought one on each side of the ship, and secured to it by ropes passing under the keel from one to the other, water was let into each till it sunk nearly down to the surface, the ropes being kept tight by windlasses or capstans on the decks of the camels. The water being then pumped out, the camels as they rose lifted the vessel with them. For large ships heavy timbers were run out of the port holes, which took the strain as the camels rose under them. Similar machines are used for carrying vessels over the bar of New Bedford harbor, and at Nantucket. Floating docks are constructed on the same principle, and vessels are often lightened by the use of empty casks floated on each side, and drawn down by ropes passed under the keel.

**CAMELS' HAIR**. The hair of the camel is an article of commerce in the East, where it is largely used for other purposes than that to which it is applied in other countries. The rough fabrics of the middle ages, called *camelinum* and *cameletum*, were woven of this material, and the Arabs now make of it stuffs for carpets, tents, and wearing apparel; and the Persians use it for like purposes. The French apply it to the manufacture of hats. The fine hair used for pencils of artists is imported from Smyrna, Constantinople, and Alexandria. It is obtained from Persia, and is distinguished by three qualities—black, red, and gray, of which the best is the black; the gray is estimated worth only half as much as the red. See **BRUSH**.

**CAMEL'S RUMP**, or **CAMEL'S BACK MOUNTAIN**, 17 miles from Montpelier, Vt., is one of the highest peaks of the Green mountains. Elevation, 4,188 feet above tidewater. From certain points of view it bears some resemblance to a crouching lion, and is occasionally called by a name given to designate this peculiarity.

**CAMELLIA**, a genus of shrubs belonging to the natural order *ternstroemiaceae*, and furnishing the domestic drug tea and some of the most beautiful of cultivated flowers. All the species are natives of China, Japan, or Nepal. They were first imported into Europe by a German Jesuit named Kamel, about the year 1739; and hence the name of Camellia. They are polypet-

alous cotyledons, with alternate feather-veined leaves, regular flowers, the petals and sepals both imbricated in aestivation, and have some affinity with the rose tribe. The *C. bohea* and *viridis* are the species whose dried leaves make the tea of commerce. None of the species bear fragrant flowers. The *C. Japonica* is called by the French *la rose du Japon*, or *la rose de la Chine*. It has broad shining leaves and beautiful red or white flowers, single or double, and is the origin of nearly all the varieties now cultivated in gardens. It is greatly admired in China and Japan, and is of frequent occurrence in Chinese paintings. Many of its varieties have been created by the skill of the Chinese, and are remarkable for their brilliant colors and the exquisite symmetry with which their petals are arranged. These have been imported into Europe and America, and new varieties are annually produced by horticulturists. Forty-five standard varieties have been developed, some having single, some double, and some semi-double flowers, and being in color, white, red, yellow, or variegated. Camellias thrive best when treated as conservatory shrubs, planted in the open border under glass, freely exposed to light and air, and sufficiently protected from the frost. Thus treated, they become large evergreen bushes, densely covered with foliage, upon which their splendid flowers are conspicuously beautiful, and much more brilliant than when the roots are confined in garden pots and cramped for want of room. They are propagated by cuttings, layers, and buds, as well as by seeds. Only a few seeds, however, can be obtained, and these require 2 years to come up, but make the best stocks of any. The *C. reticulata*, which grows in China, is esteemed the handsomest of all the varieties. Its leaves are remarkably netted, and it has semi-double flowers, of a deep rose-red color, sometimes 6 inches in diameter. Two species, the *C. sasanqua* and the *C. oleifera*, are cultivated as oleaginous plants in China, and the oil pressed from the seeds is said to be equal to the finest quality of olive oil. Attempts are now in progress to naturalize this very useful plant in the south of France, and in the French possessions of Algiers.

**CAMELOPARD** (*giraffa camelopardalis* of most authors; *ceruus camelopardalis* of Linnaeus), the giraffe, or camel-leopard; an African genus of the ruminants, with persistent horns, common to both sexes, having but a single species, as above. The characteristics of this singular animal, which appears, in some particulars, to participate in the qualities of the camel, the ox, and the antelope, are these: The lip is not grooved, is entirely covered with hair, and is very much produced before the nostril; the tongue is extremely long and prehensile, capable of being protruded or retracted at will, and of being tapered so as to enter the ring of a small key; the neck is very long, the body short, hind part lower; false hoof none; tail elongate, with a tuft of thick hair at the end. It is the horns, however, which constitute the

principal generic characteristic; since they are not, correctly, horns of either form, that of the *bovida*, which are hollow and persistent, or that of the *cervida*, which are solid and annually renewed, but are, in fact, bones, exhibiting throughout precisely the same structure as the other bones, united to the frontal and parietal bones by a distinct suture, covered with a hairy skin, and terminating in a ring of bristly hairs at the summit, surrounding a bare apex. These bristles, according to some naturalists, want only the gluten to cement them into true horns, and embody the animal in the systematic arrangement of the *cavicornia*. The camelopard is assimilated to the camel by the length of its neck, by the callosities on its chest and knees, and by its having no false hoofs; to the other ruminants by the structure of its stomach and digestive organs generally, and by its non-possession of the reticulated water bag, peculiar to the "ship of the desert." To the antelopes it is assimilated by the fact that the coils of its colon are spiral, and that its caecum is simple. To the solid-horned deer, which shed and renew those appendages annually, it is connected by what is assumed to be a fact, its having no gall bladder. It seems doubtful, however, whether this can be considered as fully established; since, of 3 individuals dissected by Professor Owen, 2 males had no trace of a gall bladder, while the 3d, a female, had a double gall bladder, each bladder of the usual size. This last has been held to be an abnormal case and the animal a monstrosity, and the camelopard is consequently classed, in this respect, with the deer and antelopes, in which the absence of the gall bladder is the rule. In its dental system, the camelopard offers the same formula with the deer, goat, antelope, sheep, and ox, namely: incisors  $\frac{1}{2}$ ; canines  $\frac{1}{2}$ ; molars  $\frac{3}{2}$  = 32. The nostrils of the camelopard are provided with cutaneous sphincter muscles, and can be shut at will like the eyes. The eyes are beautiful, extremely large, soft and brilliant, and are so placed that the animal can see much of what is passing on all sides and even behind it. Thus it is approached with the greatest difficulty; and if surprised or run down, it can direct the rapid storm of kicks, by which it defends itself, in the most accurate manner. Its horny hoofs are divided, and it wants the 2 small lateral toes generally seen in the true ruminants; from which this, again, distinguishes it.—In this truly singular and beautiful animal, as in all the works of nature, appear, not, as the carping Buffon constantly asserts, malformations and deficiencies, which render the creature unhappy and ill at ease, but the most extraordinary adaptation of all its parts, and application of all the contrivances of its mechanism, to the very stage and the very part on and in which it is to figure among the wonderful works of creation. Many things, given to other creatures in accordance with their wants, are denied to this, because they would be in this case wholly useless; while others, unknown to the rest, are bestowed on it in abundance.

Thus the immense length of its legs and height of the animal at the withers, raising the insertion of the neck, long and towering as is that portion of its frame, to such a distance from the ground that the animal can graze on an even surface only with difficulty and by straddling the fore legs wide apart, enables it to feed on what it prefers as food, and finds in abundance in the sandy and arid tracts where the superficial vegetation of the soil, except at certain seasons, is scarce, dry, and innutritious, namely, the delicate and succulent leaves and twigs of the tallest trees, particularly those of a species of mimosa peculiar to the districts which it inhabits. The peculiar conformation of the extensile and prehensile tongue, which is furnished with rough papillæ capable of voluntary erection, enables it to gather and collect into little bundles the soft leaves which it loves, in a degree scarcely inferior to that possessed by the proboscis of the elephant. The same quality is observable in the prehensile upper lip of the moose deer, which, like the giraffe, is not principally a grazing, but a browsing, animal. Its eyes, such as they are described above, give it facilities for avoiding stealthy attacks, which probably are those alone to which it is usually subject; since the only beasts of prey, of the regions which it inhabits, likely to attack it, the lion and the leopard, invariably attack by surprise and at a single bound, which missed, they both sullenly retreat without any effort to pursue. Again, its speed, which has been represented by some writers as contemptible, owing to a certain awkwardness in the management of its limbs and slowness in getting under way, is by no means so, in truth; as is shown by the statement of all hunters who have pursued it, particularly the African Nimrod, Capt. Gordon Cumming; all of whom testify that, being a timid and wary animal, and always securing for itself a good start, it is not easily overtaken, except by a swift horse. Its paces are a trot, a pace with both legs moved on the same side, and a regular gallop, by changing from one to the other of which, with no apparent diminution of its speed, it can keep up a considerable rate of going—not of course equal to that of the deer, antelope, greyhound, or race-horse, but in all respects sufficient for its purposes—for a long continued space of time and distance. Where water and pasture are to be found only at long intervals, and where swift pursuit is not a contingency naturally to be provided against—since Cummings, mounted on Colesbergs and armed with 2-grooved rifles, do not come within the category of the natural enemies of the giraffe—the power of continued locomotion for great distances is a far more necessary qualification for a life in the desert, than that of exerting a great turn of speed over a short course. It has been said that it has not strength to defend itself, but Le Vaillant, who is the first well-informed modern zoologist who saw it in a state of nature, asserts that “he

knows beyond a doubt, that by its kicking it often tires out, discourages, and even beats off the lion.” The same fact is shown by Capt. Cumming’s mention, on more than one occasion, of his seeing or killing camelopards with large unhealed wounds on their shoulders and haunches, made by the cruel claws of lions, which in those cases must actually have succeeded in their first spring, and then been shaken from their hold by the muscular power, and beaten off by the iron heels of this nominally defenceless ruminant. Of the strange adaptation of the camelopard to the country and scenery he inhabits, the observant naturalist and sportsman—to whose enterprise we owe so much of our knowledge of the fauna of southern and central Africa, yet to whom we can scarcely pardon his wholesale butchery of animals so beautiful, so inoffensive, so harmlessly happy in their central wilds, and so utterly useless and unprofitable when slain, as the giraffes, which, by his own account, he shot down by scores, unresisting and weeping in their agony, not at a single shot, but by the slow torture of protracted volleys—speaks as follows: “I have often traced a remarkable resemblance between the animal and the general appearance of the locality in which it is found;” and then, after pointing out many such analogies between ordinary small animals, reptiles, and insects, and the natural objects among which they live, he proceeds thus: “In like manner, among quadrupeds, I have traced a considerable analogy; for even in the case of the stupendous elephant, the ashy color of his hide so corresponds with the general appearance of the gray, thorny jungles which he frequents throughout the day, that a person unaccustomed to hunting them, standing upon a commanding situation, might look down upon a herd of elephants, and fail to detect their presence. And further, in the case of the giraffe, which is invariably met with among venerable forests, where innumerable blasted and weather-beaten trunks and stems occur, I have been repeatedly in doubt as to the presence of a troop of them, until I had recourse to my spy-glass; and on referring the case to my savage attendants, I have known even their optics to fail—at one time mistaking the dilapidated trunks for camelopards, and again confounding real camelopards with those aged veterans of the forest.” The camelopard, when full-grown, appears sometimes to attain a height of 15, 16, and even 17 feet. It was formerly believed almost universally, though quite erroneously, that the fore legs are much longer than the hinder ones, the very reverse being the case; as, in fact, on examination of the skeleton, taking the legs only from the setting on, the hind legs are the longer by about one inch. The great development and height of the withers, which are needed to give a proper base to the long neck and towering crest, have been the cause of this error; the same mistake has prevailed in regard to the American moose deer, the withers of

which have the same extraordinary elevation above the shoulder, with a comparatively short and muscular neck. This erroneous opinion is observable in the following dimensions, which are given of a male camelopard killed in the country of the Namaquas in 1761. The measurements of the hind and fore legs are to be understood as being taken from the withers and the croup to the ground respectively, and not from the insertion of the legs.

	n.	in.
Length of the head.....	1	8
Fore leg, from lower to upper part.....	10	0
From upper part of fore leg to the top of the head.....	7	0
Upper part of fore leg to upper part of hind leg.....	5	6
Upper part of hind leg to the tail.....	1	6
Height of the hind leg, upper to lower part.....	8	5

This animal, therefore, was probably 17 feet in its full reach from the earth to the crown of the head. One mentioned as killed by Mr. Pater-son was 15 feet in height, but of the 8 recently alive in the zoological gardens at London, one, Guib Allah, male, measured, in all, 13 ft. 8 in., withers 7 ft. 11 in., croup 6 ft. 11 in.; Selim, male, in all, 13 ft., withers 7 ft. 5½ in., croup 6 ft. 7 in.; Zaida, female, in all, 12 ft. 11 in., withers 7 ft. 4 in., croup 6 ft. 7 in. None of these were supposed to be full-grown, although the female had produced 8 young ones, notwithstanding which she was still growing.—The color of the camelopard varies, both in its intensity and in the mode of its variegation. The head is generally of a uniform reddish brown; the neck, back, and sides, outside of the shoulders and thighs, varied with large tessellated, dull, rust-colored marks of a square form, with white septaria, or narrow divisions; on the sides the marks are less regular; the belly and legs are whitish, faintly spotted; the part of the tail next to the body is covered with short, smooth hairs, the trunk is very slender, and toward the end the hairs are very long, black, and coarse, and form a great tuft hanging far beyond the tip of the trunk. The coloring of the female is less vivid than that of the male; she is somewhat smaller, and has the peculiar protuberance of the frontal bone between the eyes, which is common to both sexes, and which by some writers has been called a rudimental horn, less strongly developed than the male animal.—The camelopard has been long known to history. It occurs on the painted walls of the sekos of the Memnonium, discovered and described by Belzoni; and is also represented on the celebrated Prænestine pavement, said to have been constructed by the orders of Sylla, who had served as *questor* in Numidia. It was exhibited in the *circus maximus* by Julius Cæsar, alive, for the first time in Europe, but was afterward a frequent spectacle at the cruel shows of Rome. Gordian, the third of the name, once exhibited 10 together on a single occasion. It continued to be known and described by travellers, but few have been brought into Europe until very recently. One was presented by the prince of Damascus to the emperor Frederic II., in the early part of the 13th century; another was given

in the 15th by the sultan of Egypt to Lorenzo de' Medici, and none were introduced subsequently until the year 1827, when 2 giraffes were sent by the pasha of Egypt, one to France and the other to England, the former of which lived some time in the *jardin des plantes*; but the latter died soon after its arrival at the royal cottage, in Windsor park. Subsequently specimens were forwarded to Venice and Constantinople, by the same munificent potentate, whose successor has recently enriched the English collection with a living hippopotamus. One was exhibited in this country in 1833 and several others since. In 1836, the London zoological society imported 4, 3 males and 1 female, at the expense of £2,886, or nearly \$12,000. One of the males died shortly after their arrival, but the others, the measurements of which are given above, are still, it is believed, thriving; and, having several times reproduced their kind, they may be supposed to be thoroughly acclimated. In its natural, as in its domesticated state, the camelopard is a gentle, timid, shy, and inoffensive animal; yet it is extremely docile in confinement, feeds from the hand, licks the hand which feeds it, and becomes friends with those who are kind to it. Its natural range appears to be all the wooded parts of eastern, central, and southern Africa, from Sennar and Abyssinia to Senegal and the vicinity of the settlements of the Cape of Good Hope, although, like all wild animals, it retreats as the white man advances, and recedes before the approach of civilization. In domestication it serves no purpose but to gratify curiosity and to promote the study of nature, since it is unfit for draught; and although its flesh is said by hunters to be eatable, it is not suitable for furnishing either meat or milk.

CAMELOPARDALUS, the camelopard or giraffe, a constellation instituted by Hevelius. It lies between the N. pole, the Wagoner, Cassiopeia, and the head of the Great Bear, and contains small stars of the 4th magnitude only.

CAMENZ (Ger. KAMENZ), a town of Saxony, on the White Elster, pop. about 4,000, the birth-place of Lessing, and containing a hospital dedicated to his memory, Jan. 8, 1826. The town was almost wholly destroyed by fire in 1742, but has been rebuilt since.

CAMEO, originally a gem in different colored layers, carved in relief with figures that contrast with the color of the background. Varieties of chalcedony, onyx, and sardonyx are the most common gems used; but softer and cheaper materials are of late much employed for this purpose, which will be noticed below. Cameo-cutting is an art of remote origin, and the word is of obscure derivation. It is referred by some to the oriental word *camehuia*, signifying another stone, or one stone placed upon another; to the Arabic word *camaa*, signifying relief, boss; and by others to the Greek *καμαρα*, Lat. *camera*, a vault, or an arched covering, in a similar sense to the last. The art was certainly practised by the Egyptians, and was brought to a high state of perfection by the

Greeks; and yet it is probably not so old as the simpler process of carving in intaglio. Beside employing the natural gems, the Latins made use, in the time of Pliny, of an artificial paste in 2 colors, called *vitrum obsidianum*. But the hard stones used by the Greeks, by the delicacy of finish of which they are susceptible, and by the durability of the lines carved upon them, have proved a better material for transmitting to distant ages an idea of the high attainments of this cultivated people in art, than either bronze or marble. Neither the one, shrouded in its prized patina, nor the other, disguised in *quasi* restorations, can convey an idea of the patient labor and exquisite skill that curled the hair of Hercules, or brought out the expression of disdain that inflated the nostrils of Apollo, or the supreme intelligence beneath the helmet of Minerva, or of power, controlling gods and men, in the mien of Jupiter. Even now connoisseurs distinguish between modern gems and those cut more than 2,000 years ago, by the superior polish of the latter. In the 4th century, cameo-cutting had fallen into disuse, the art ending, as it began, in lifeless stone. On its revival in Rome, in the 15th century, gem-engraving received especial patronage from Lorenzo and Pietro de' Medici. Specimens of this period rival in perfection those of more ancient times. The art has since continued to be extensively practised in Italy; but its adoption in other parts of Europe can hardly be referred beyond the present century. The chief peculiarity of the Italian style is the converting of blemishes in the material into points of attraction, and bringing them boldly out in alto rilievo, as if designed for some special representation; while the Greek, seeking perfect harmony in the colors of the gem, by a series of subtle curves and most delicate lines running through its low relief, effectually concealed the labor, made so obvious in the productions of later times. The first cameo of which we have account is that of Polycrates' ring, by "Theodorus of Samos, son of Telectes the Samian." Among the finest cameos are those in the imperial cabinet of St. Petersburg; one of Perseus and Andromeda, on a pale brown sard, the figures of exquisite finish in high relief; the other of Ptolemy II. and the first Arsinoë; the same Ptolemy and the second Arsinoë appear on a gem of inferior merit in the Vienna museum. That representing the apotheosis of Augustus, in the *Bibliothèque impériale* at Paris, is the largest and one of the most famous of these works; it is an onyx measuring  $1\frac{1}{2}$  inches in one direction, and  $1\frac{1}{4}$  in another. This antique cameo contains 22 figures. It is often known by the name of *Agate de la sainte chapelle*, from the holy chapel of the palace to which it was consigned by Charles V. It was there regarded as representing the triumph of Joseph under Pharaoh. It came originally from the East in the time of St. Louis. This collection contains many other choice works of this kind. At Naples is

one ranked among the finest, representing the apotheosis of Ptolemy on one side, and the head of Medusa on the other. Of the ancient cameos, the most noted is the Mantuan vase at Brunswick, representing on one side Ceres seeking her daughter—on the other, the goddess teaching agriculture to Triptolemus.—At Ekaterinburg, in the Ural mountains, Atkinson ("Western and Oriental Siberia," p. 95) speaks of seeing a workman engaged in cutting a head of Ajax, after the antique, in jasper of 2 colors, the ground a dark green, and the head a yellowish cream color, in very high relief, and intended for a brooch. It was a splendid production of art, made, however, at a cost for labor of only 8s. 8d. sterling per month, and 86 lbs. of rye flour. In other countries, where this skill commands higher prices, the great expense of cutting these hard substances has led to the substitution of softer materials, and varieties of porcelain and of enamelled glass are often now used. But the material most extensively employed is the shell of various species of mollusca, which, while it is easily carved, presents layers of a fine natural polish and beautiful colors. The use of shells began in Rome about the year 1830, and for some years the whole consumption was about 800 per annum, all of which were sent from England, and sold in Rome for about 80s. sterling each. In 1847 the consumption had become very large in Paris, so that the sales in that year were reported to amount to no less than 100,500 shells, at an aggregate cost of £3,960. The shells are of 4 varieties only, and known as the bull's mouth, black helmet, horned helmet, and queen conch. Of the first named, 80,000 were sold at an average price of 1s. 8d.; of the 2d, 8,000 at 5s. each; of the 3d, 500 at 2s. 6d.; and of the 4th, 12,000 at 1s. 2½d. The queen conch is referred to by Woodward as the *cassis Madagascariensis*. This and the *C. tuberosa* he describes as presenting a white upon a dark claret color; the *C. cornuta*, white on orange ground; the *C. rufa*, a pale salmon on orange; and *Strombus gigas*, yellow on pink. ("Manual of the Mollusca," pp. 46, note, and 114.) The black helmet is probably the *C. tuberosa*, which, under its commercial name, is elsewhere spoken of as presenting a white upper layer upon a dark, almost black ground. The horned helmet is no doubt the *C. cornuta*. The bull's mouth we judge is the *Strombus gigas*, of which Woodward states 800,000 were brought to Liverpool in 1850 for cameos and porcelain. Although the shells were furnished to the trade by the English, and the value of the cameos produced in Paris in 1846 was estimated at £40,000, there were at that time not more than 6 persons employed in the art in England.—Cameo-cutting, in this country, can hardly be said to be introduced as a branch of business. The beauty and neatness of the process has caused it to be taken up by amateurs, and it is practised for amusement by gentlemen and ladies, the pieces of shell being prepared and fur-

nished to them by the lapidaries. These pieces are cut out of the required size by a metallic blade fed with diamond dust, or emery and water, and are then shaped by grinding and whetting. Each piece is then cemented upon a stick, which serves as a handle during the operation of cutting. The design is marked out with a pencil, and then scratched in with a sharp point. The cutting is afterward done with the use of a number of delicate pointed instruments made of steel wire, as also of small files and gravers. Holtzapffel ("Mechanical Manipulations," vol. iii.) gives particular directions respecting the process. "The general shape should be first wrought, with care to leave every projection rather in excess, to be gradually reduced as the details and finish of the work are approached. To render the high parts more distinct during the process of carving, it will be found convenient to mark them slightly with a black-lead pencil. Throughout the cutting, great caution should be observed that in removing the white thickness the dark ground is not damaged, as the natural surface of the dark layer is far superior to any that can be given artificially; indeed, should the ground be broken up at one part, it would be requisite from its lamellar structure to remove the entire scale or lamina from the whole surface, a process that will be found very tedious and much more difficult than the separation of the white from the black thickness. In order that the finished cameo may possess a distinct outline at all points of view, it is desirable to adopt the system followed in antique cameos, namely, to leave all the edges of the figure quite square from the ground, and not gradually rounded down to the dark surface. Should the latter method be followed, it will be found that the outline is in many places undefined, owing to the color of the white raised figure of the cameo gradually emerging into that of the dark ground. This evil is entirely avoided by leaving the edge of the figure quite square for the thickness of about  $\frac{1}{16}$  of an inch. The surface of the cameo should be finished as nearly as possible with the cutting tools, as all polishing with abrasive powders is liable to remove the sharp angles of the figures, and deteriorate the cameo by leaving the form undefined. When, however, the work has been finished as smooth as possible with the cutting tools, the final polish may be given by a little putty-powder used dry upon a moderately stiff tooth-brush, applied with care, and rather to the dark ground than to the carved surface; this is the concluding process, after which the cameo is ready for removing from the block prior to mounting."—Cameos carved in onyx and carnelian demand more skill, as well as labor, than those in shell. A drawing is first made on an enlarged scale, and from this a model in wax of the exact size. The outline is then drawn on the stone, and the engraving is executed with the tools used by the lapidary for engraving seals, being drills of soft metal, as copper or iron, made to revolve rapidly, and fed with

emery and oil. False cameos are sometimes made by carefully cutting out the engraved portion of antique gems and attaching this to a ground of agate of another color. Boudant (*Minéralogie*, vol. i. p. 706) refers to some cameos in a slaty kind of onyx, *schistes onyx*, which are brought from China as objects of curiosity. They are sheets of rock resembling very compact slates, and presenting 3 or 4 differently colored layers; one a brown, which is the ground, others red, white, and greenish. In these the Chinese have sculptured various objects, as the interiors of houses, and landscapes, which are sometimes enlivened with figures of men and animals. Some are so large that they may be regarded as bas-reliefs for interior decorations.

CAMERA JEOLIA, a substitute for a bellows, made by a falling stream of water.

CAMERA LUODA, an instrument invented by Dr. Wollaston, consisting of a quadrangular prism, used as a mirror. The light coming from an object is made to strike one face of the prism at right angles, then to be reflected from the inside of the 2d face to the inside of the 3d, then thrown out (to the eye of the observer) at right angles to the 4th face of the prism. The instrument is used for drawing outlines, the eye being so held that you look with the upper half of the pupil into the prism, and with the lower half outside the prism at the pencil and paper on which the image seen in the prism appears to lie.

CAMERA OBSCURA, an instrument invented in the middle ages, in which the image of illuminated objects formed by a convex lens is received upon a screen in a darkened chamber, or in a box. It was for centuries used as an amusement, or as a guide in drawing outlines; but, by the invention of Daguerre, was suddenly invested with new and incalculable value as the main instrument in photography.

CAMERARIUS, JOACHIM, a German scholar, born at Bamberg, April 12, 1500, died in Leipzig, April 17, 1574. His proper name was Liebhard, which he changed into Camerarius, in honor of the office of chamberlain, which his ancestors held at the court of the bishop of Bamberg. Educated at Leipzig and Erfurt, his attention was arrested by the writings of Melancthon, and in 1521 he went to Wittenberg to make the acquaintance of that reformer. From this time his life and influence were identified with the reformation. In 1526 he was appointed teacher at Nuremberg, and was afterward sent to the university of Tübingen. The duke of Saxony, a few years later, employed him to remodel the Leipzig university, of which he was afterward appointed rector. In 1530 he was at the diet of Augsburg, and gave important aid in drawing up the celebrated confession of that name; and when, in 1555, it assembled again, Camerarius continued an active and prominent delegate, and in the year following was at Ratisbon in the same capacity. In 1568 he was



called to Vienna by the emperor Maximilian to counsel in the critical affairs of the empire in regard to religion. Camerarius was a scholar of extensive and varied learning. He particularly cultivated medicine, mathematics, and Greek. His works (more than 150 distinct treatises) are mostly on classical and religious subjects. His biography of Melanchthon, of which a new edition appeared in Halle in 1777, and his collection of letters of Melanchthon, are peculiarly interesting to the student of the times of the reformation.—JOACHIM, son of the preceding, born at Nuremberg, Nov. 5, 1584, died there Oct. 11, 1593, was sent successively to Wittenberg and Leipsic, and also studied with Melanchthon. He received a medical diploma at Bologna in 1562. Botany was his favorite study. A genus of plants (*Cameraria*) was named after him.

CAMERLINGO, or CAMARLINGO, one of the highest officers of the Roman court. The camerlingo exercises supreme power when the papal chair is vacated, and, as the head of the government, controls the treasury and administers justice. He presides over the apostolic chamber. The present camerlingo is Cardinal Ludovico Altieri, and the vice-camerlingo is Antonio Matteucci.

CAMERON, a southern county of Texas, bordering on the gulf of Mexico, separated from Mexico on the south by the Rio Grande, and containing 5,460 sq. m. The soil, though fertile and well adapted to cotton, maize, and the sugar-cane, is very little cultivated, most of the wealth of the inhabitants consisting of live stock, the value of which, in 1856, was \$103,240. The surface is dotted with numerous lakes, many of which yield excellent salt. The largest of these, called Sal del Rey, is capable of producing almost unlimited quantities. In 1850 the harvest amounted to 8,700 bushels of corn and 2,000 lbs. of wool. There were 4 churches, and 415 pupils attending public and other schools. The county was named in honor of Capt. Cameron, who fell in the Mier expedition. Pop. in 1856, 8,755, of whom 11 were slaves. Capital, Brownsville.

CAMERON, JOHN, a Scottish theologian born at Glasgow about 1579, died about 1625. He received his education in the university of his native city, and made such proficiency in the Greek language, that at the age of 19 he read lectures in Greek, and discoursed in it with as much ease as the scholars of his day generally did in Latin. This laid the foundation for his distinction. He spent some time in France, where he made the acquaintance of many eminent Protestants, and where he was eventually appointed regent of the university of Bergerac, but soon vacated this chair in favor of that of philosophy at Sedan, which appointment he received through the favor of the duc de Bouillon. The chair of Greek at Sedan he declined. At Sedan he remained but 2 years, removing to Bordeaux. By a provision of the church 4 theological students of promise were

constantly supported from the church funds. Cameron was nominated one of these, and spent the next 4 years successively at Paris, Geneva, and Heidelberg. At the expiration of this time, he returned to Bordeaux. In 1618 he was appointed to succeed Gomar in the chair of divinity at Saumur. The civil wars by which France was distressed caused the dispersion of the university (1620), and Cameron returned to his native town. Here he received an appointment as regent of the university of Glasgow. As Boyd, his predecessor, had been removed on account of Presbyterianism, Cameron was naturally accused by his townsmen of leaning to Episcopacy. This caused him to resign the office before the expiration of a year. Returning to France, he gave private theological lectures at Saumur, until in 1624 he was appointed professor of divinity at Montauban. The doctrine of passive obedience which he had promulgated, exposed him to the censures of many Protestants, and he withdrew to Moissac, but soon returned to Montauban, where he died of a wound given by an unknown hand. His life and works have been published by Louis Cappel, a professor of Hebrew, and afterward of divinity at Saumur. Cameron held some peculiar doctrines on the action of the will, which distinguished him from the Calvinists, and also sufficiently from the Arminians. His theory of will was based on the position that it could only be acted on by motive appealing through the judgment or intellect. The synod of Dort had promulgated that God operated on the human will by a direct interposition of divine power, restraining and directing its action, and by enlightening the understanding, so that it would influence the will to a given action. Cameron's theory sought to reduce these 3 modes of the divine government of human will into one. He was accused by Calvinists of Pelagianism. He also taught the universality of the effects of Christ's sacrifice, and was designated a Universalist. His followers were styled Amyraldists, and also from him, Cameronites. They are to be distinguished from Cameronians.

CAMERON, RICHARD, the founder of the religious body called Cameronians. He was born in Falkland, Fife co., Scotland, died July 20, 1680. His father was a small shopkeeper, and an Episcopalian. Cameron, having received such an education as the parochial school of his native town was able to furnish followed for a time the religious faith of his father, and was appointed master of the parish school. This made him *ex officio* the preceptor of the parish church. But having heard some field-preachers, Richard was converted to Presbyterianism. Resigning his office as parochial master, he was promoted to the degree of field-lieutenant, under the imposition of hands by John Welch. The Presbyterians were at that time divided into 2 parties, on account of a bill denominated the indulgence, which, by making their worship legal, was designed to harmonize them with the government and the

established religion. A part of the ministers accepted the indulgence, and their congregations worshipped under it peaceably. But a part refused its protection, and opposed their brethren for acquiescence. The recusants were violent and bitter against the indulged ministers. Cameron soon became a powerful leader of the insurgents, and when the government issued a proclamation to suppress them, he found himself so prominent in the opposition that he deemed it necessary to flee to Holland for safety. He however returned in 1680, and renewed his hostility to the course of the government, and, although he had somewhat compromised himself with the indulged party, pushed his opposition to such an extreme that, soon after the defeat of Bothwell Bridge, he marched into Sanquhar at the head of his troops, formally declared war against the government, and exasperated the royal troops to an attack near Aird's Moss, in which he was killed, and his head and hands were cut off, carried to Edinburgh, and publicly exposed on Netherbow Port. Before the engagement, he indulged in the severest invectives against the indulgence, and all who favored or accepted it, and was heard to pray that the Lord, in the battle, would "spare the green and take the ripe." His name, first applied to his followers, has been since erroneously extended to the persecuted Presbyterians in general. The 26th regiment, raised at the revolution out of the west country inhabitants, was called the Cameronian regiment, an appellation which it still retains. Cameron was believed by his followers to have prophesied the fate of his hands, on the morning of the fatal engagement of Aird's Moss. He gave special attention to washing them, under the expectation that they were soon to become a public spectacle.

**CAMERONIANS**, a sect of Scotch Presbyterian dissenters, named after Richard Cameron. James I. had enforced on his Scottish subjects a liturgy which the people abhorred as they would a service to Baal. This exercise of the royal prerogative led, in 1688, to the formation of the covenant, "in behalf of the true religion and the freedom of the kingdom." The organization of the Scottish presbytery was still further completed in the adoption of the Presbyterian form of church government, a Calvinistic confession of faith, and the 2 catechisms, which documents are the standards of the Scottish kirk to this day. The act of 1661 of the English and Scotch parliaments against conventicles, the legalized persecutions conducted by Turner, Dalziel, and Drummond, the famous writ of law-burrows issued by the king against his Scottish subjects in 1670, the intercommuning expedient of Landerdale and Sharpe, and the execution of Mitchell in 1679, had all contributed to exasperate the Covenanters to a degree where forbearance ceased to be a duty, in the creed of those stern old followers of Knox. The Covenanters had made a stand at Bothwell Bridge, and had been disastrously defeated.

Many of them had lost courage, and were screening themselves from royal vengeance by frequenting the churches of the indulged ministers. But a few, headed by Cameron and Cargill, met at Sanquhar (June 22, 1680), and there promulgated "A Declaration and Testimonie of the true Presbyterian, Anti-Prelatic, Anti-Erastian, and Persecuted Party in Scotland," proclaimed war against the king as a tyrant and usurper, and protested against receiving the duke of York in Scotland. Only about 26 horse and 40 foot forces could be mustered to sustain the Sanquhar declaration. But these few were not to be dismayed. They boldly took stand at Aird's Moss, Kyle, on July 20 following, where Cameron fell in a skirmish with several of his followers. Cargill escaped and continued to preach the doctrines of the sect, in fields and woods. When the royalists added the test (1681), the Covenanters, or Cameronians, as they are henceforth to be known, formally denounced it at Lanark, Jan. 12, 1682, and again affirmed the Sanquhar declaration. This they repeated again in 1684, and in 1685, on the accession of the duke of York (James II.), hurled again from Sanquhar the same manifesto and protest. Throughout the revolution which followed, the Cameronians maintained the same inflexible hostility to the royal usurpation of religious freedom, and stand to-day where they did in the Sanquhar proclamation, though with less fanaticism. They supported the prince of Orange on his assuming the crown of England, but were displeased and disappointed by the form in which the Presbyterian church was restored. In 1709 they exerted all their influence against the union of Scotland and England. They are more properly in Scotland denominated "Old Presbyterian Dissenters," as Calvinistic in doctrine, Presbyterian in government, and dissenters from the church of Scotland. The presbytery of this denomination was not organized until Aug. 1, 1743, when an act of toleration was procured in their favor. There are now 5 presbyteries, united in a synod. Their numbers in Scotland are between 6,000 and 7,000. They have a synod in Ireland, several congregations in England, and in the United States about 60 congregations.

**CAMEROONS**, or **CAMERONES**, a river of Upper Guinea. It enters the bight of Biafra by an estuary 20 m. wide, in which are several large islands. Around its mouth the shores are overgrown with mangroves. For about 40 m. above this, it preserves an average breadth of 400 yards, and at a point 90 m. distant from the sea it forms a cataract. During the rainy season it is navigable by vessels of any size, but in the dry season its depth is only from 2 to 20 feet. Its total length is unknown. On one of the islands at its mouth is the town of Cameroons, the centre of an important commerce, importing salt, powder, cloths, hats, and arms, and exporting gum, pepper, ivory, and palm oil.

**CAMEROONS' MOUNTAINS**, a chain of western Africa. The highest peak, which is

covered nearly to the summit with dense woods, has an elevation of 18,000 feet, and is apparently the commencement of a volcanic range stretching N. E. and uniting with the Mountains of the Moon.

CAMETA, a flourishing town in the province of Para, Brazil. It is situated on the Tocantins, in an extremely fertile district, whose population is 20,000.

CAMIGUIN ISLAND, one of the Babuyanes islands, in the Malay archipelago. It is from 7 to 9 m. long, high, and very hilly. The southern part consists of a mountain formerly a volcano, and coral rocks extend along the shores. The port of San Pio Quinto, on the W. side of the island, is the only place which affords even tolerable shelter for large vessels.

CAMILLUS, MARCVS FURIUS, a Roman magistrate, died of pestilence in 365 B. C., whose name is connected with the greatest events of a long period of the history of the republic, and whose life has probably been adorned with many a legend, appears first as censor in the year 408 B. C., then several times as consular tribune, 5 times as dictator, and twice as interrex. Having served during the siege of Veii, and in the war against Falerii, he defeated, in his 1st dictatorship, the Falisci, Capenates, Fidenates, and other tribes, advanced to Veii, penetrated through a subterranean passage into the city, and thus put an end to its siege, which had already lasted 10 years. He made his triumphal entrance at Rome in a chariot drawn by 4 white horses, and asked the 10th part of the booty, to accomplish a vow to Apollo, for which circumstances his enemies accused him of pride and extortion. But he earned new glory by the conquest of Falerii, which surrendered to his generosity, as proved in the repudiation of an act of treachery committed by a schoolmaster. His continued opposition to the emigration of the people to Veii, rendered him unpopular; accused of having embezzled a part of the booty of that city, he left Rome, and lived in exile at Ardea, when the Gauls under Brennus invaded and pillaged Rome. He repulsed them from Ardea, was secretly recalled by the defenders of the capitol, and appeared at Rome, according to a legend, at the head of an army, at the moment when the gold for which the Romans purchased peace was being weighed before the insulting conqueror. "Rome buys her freedom with iron," he exclaimed, and proved it. He routed the Gauls twice, had a new triumph, was called a second Romulus, and prevailed again against the desertion of Rome, now in ruins. He subsequently defeated a coalition of the Æqui, Volsci, Etrurians, and Latins, was successful in a war against Antium, had to struggle against the rivalry of Manlius, and, as dictator for the 5th time, against the agitation of Licinius Stolo, and was, at the age of 80, once more victorious over the Gauls. Camillus was the resolute champion of the patricians, and resigned his 4th dictatorship in 367 B. C., when he found it

hopeless to resist the increasing demands of the plebeians. He is the great hero of his time, and his virtues and exploits are recorded with exaggerated praise by Livy and Plutarch.

CAMINATZIN, or CAOMAZIN, a Mexican king, died in 1521. He was nephew of King Montezuma, and reigned over Tezcuco, the principal city of Anahuac. The best citizens of the state, the nobles and priests, saw with indignation the humiliation of their king and kingdom under Cortes and the Spaniards. Caminatzin, with more courage and enterprise than his uncle, proposed to his subjects a declaration of war against the foreigners. The proposal was received with enthusiasm, and Caminatzin called upon the Spaniards to leave the country immediately or to expect to be treated as enemies. Cortes was preparing to march his army against Tezcuco, when the representations of Montezuma concerning the defences of the town and the daring of the population, induced him to change his plan, and to resort to treason instead of force. At his instigation Montezuma invited his nephew to Mexico to become reconciled with the Spaniards. The answer of Caminatzin was that he could enter Mexico only to destroy the tyrants of his country. Montezuma then despatched secret agents to Tezcuco to get possession of the young prince by whatever means. His first officers and nearest friends were corrupted, and he was delivered by them to Cortes and imprisoned. He was released after the expulsion of the Spaniards, and is supposed to have perished soon after in the siege of Mexico.

CAMISARDS, French Protestants who rebelled in the Cevennes at the beginning of the 18th century, so called from a kind of smock-frock which they wore, called *camisa*; they are also called Cevenols. As early as the 18th century the Albigenes and Waldenses had taken refuge in the Cevennes; and their opinions, prevailing among a sober and virtuous people, outlived the persecutions to which they were occasionally subjected. After the reformation they adopted the Calvinistic creed. They were of a peaceful disposition; but during the reign of Louis XIV. they were subjected to a long series of violent and merciless persecutions. Prominent among their enemies was the Abbé Duchayla, who subjected many of them to torture. On a night in 1703, a few hundred of them stole to the castle of Pont de Montvert, his residence, seized on the hated priest and murdered him. This was the signal of general rebellion. All the Cevenols, or, as they were now called, the Camisards, flew to arms, incited by their desire for vengeance and incensed by the speeches and prophecies of some among them who pretended to be inspired. "No taxes," and "Liberty of conscience," were the devices inscribed on their standards. They were commanded by bold leaders: Roland, who had served in the army and possessed some military knowledge; Jean Cavalier, a journeyman baker who at once evinced remarkable talents; Ravenal and Ahyas Maurel, surnamed Catinat. It was an awful

war. The marshal de Montrevel, who was first sent against them, thought that terror and severity were the only means of subduing such fanatics; he had their villages burned, and all the prisoners hanged or broken on the wheel. The Camisards in their turn burned and pillaged Catholic villages, sacked churches, and massacred priests. At last Marshal Villars succeeded the merciless Montrevel, and tried clemency and persuasion; through skilful negotiations and generous promises, he brought a number of Camisards to terms, among them Jean Cavalier, who was then the ablest and most popular of their chiefs; but this submission, though a heavy loss to the insurgents, did not bring the contest to a close. Cavalier was cursed as a traitor by his brethren; and the other leaders, and especially Roland, continued to resist. But Roland having been killed in 1704 in a night engagement, the hostilities slackened, the country was apparently pacified, and Marshal Villars left it for other service. In 1705, however, Marshal Berwick had again to crush a rebellion. A few years later, through the agency of some Dutch emissaries, a new rising took place in the Vivarais, a part of the Cevennes country; and its suppression was a hard task for the enfeebled government of Louis XIV. The Camisards were honest and virtuous people; but their name was wrongfully assumed by troops of robbers who, about the same period, pillaged some parts of Languedoc.—A new work on the Camisards, by Ernest Alby, was published in Paris in 1858.

**CAMLET**, a plain stuff, sometimes wholly of goat's hair; sometimes having the warp of hair and the woof half hair and half silk; sometimes both the warp and the woof of wool; and sometimes the warp of wool and the woof of thread. The true oriental camlet is made of Angora goats' hair. Its name is derived from its having been made originally of camels' hair.

**CAMMERHOF, FREDERIC**, a Moravian bishop, died at Bethlehem, Pa., April 8, 1751. He came to America in 1746 to assist Bishop Spangenberg as a missionary to the Indians. He remained till 1750 at the Moravian establishments on the Susquehanna, when he went to Onondaga to preach to the Iroquois. In 4 years he had baptized 89 Indians.

**CAMOËNS, LUIS DE**, the greatest among the Portuguese poets, born in Lisbon in 1524, died there in 1579. His father, who descended from an ancient Galician family, was a sea-captain, and was shipwrecked in 1552 on the coast of Goa. Young Camoëns, who inherited an ardent love for the excitement of sea life, and an adventurous disposition generally, commenced his studies in 1538 at the university of Coimbra, and inspired his teachers, Diogo de Teive, Vicente Fabricius, and Pedro Nunes, with great confidence in his genius. He left the university with a high literary reputation; but a passion which he conceived for a lady of the court, Catarina de Atayada, blighted his prospects in the very commencement of his career. The lady's

family discountenanced his suit; and the king, João III., himself supposed to have been in love with the young lady, banished him from the capital. Catarina could not bear the separation from her lover, and died of a broken heart. He survived her about 80 years, but he lived and died a bachelor. In his despair at her loss, he joined the Portuguese expedition against Morocco, and fought like a lion, but had the misfortune to lose one of his eyes, which disfigured him for life. On his return to Lisbon in 1552, he was again disappointed in his expectations of receiving employment at the court, and proceeded to Goa, where, however, soon after his arrival, he gave offence to the authorities by a satirical poem entitled *Disparata na India*, in which, among other disparaging allusions, he says of the Portuguese office-holders in India, that *Pois honra e proveito nao cabe num sacco*: "Honor and self-interest are never found in the same sack." He was banished to Macao, where he received the appointment of *provedor dos defunctos* (administrator of the effects of the deceased), and the salary connected with this office, though very small, was sufficient for his support. The great discoveries which had disclosed to Portugal the Cape of Good Hope and the key to the Indies, the stirring conflicts with the Moors, the efforts of the missionary to Christianize, while the explorer strove to colonize, and, above all, the general impetus which, after the advent of Gutenberg, Columbus, and Luther, electrified the mental atmosphere of Europe, and inspired the muse of the Italian and Spanish poets, exerted a powerful influence upon the ardent imagination of the Lusitanian; and with a mind richly stored with classical learning, with a heart purified by his romantic love for Catarina, and the most enthusiastic admiration for the achievements of his native country, Camoëns resolved to do for Portugal what Homer had done for Greece, and wrote his "*Lusiad*," or *Os Lusíadas*, so called after the mythological hero Lusus, who, in company with Ulysses, visited Portugal and founded the city of Lisbon under the name of Ulyssipolis. This great epic was completed by Camoëns during his stay in Macao, where a grotto is still pointed out to which the poet frequently resorted to write. In 1561 he received permission to return to Goa. But here one calamity after another befell him. First stripped of every thing he possessed by a shipwreck, he was thrown into prison for debt immediately after his arrival at Goa, and detained there until 1569, when he returned to Lisbon, where the rest of his life was doomed to the most abject poverty. King Sebastian granted him a pension of 15,000 reis, equivalent to the small sum of \$21, a year; and this pittance, miserable as it was, was subsequently withheld. For some time he was supported by a devoted Javanese servant, Antonio, who collected alms for him during the night and nursed him during the day; and afterward he was removed to the hospital, where he died. After

his death he was called the "Apollo Portuguese," "Camões o Grande," a monument was erected to his memory, medals struck in his honor; his "Lusiad" was translated into foreign languages, and warmly praised by both Lope de Vega and Tasso. Tieck founded a novel upon the poet's death (*Tod des Dichters*), and Portuguese and foreigners flock to the Lusiad grotto at Macao, which has been adorned in a beautiful manner by Mr. Fitzhugh, an English admirer of the poet. Camões' life, which in many respects resembles that of Cervantes, presents a sad record of the struggles of a chivalric man of genius with congenial circumstances. Beside the "Lusiad," he wrote sonnets, which are devoted to love, chiefly to his love for Catarina, to the celebration of virtue, and to friendship. In these sonnets he pays a graceful homage to his teachers, and a warm tribute to his friend Noronha. The sonnets written shortly before his death breathe the purest imagination. The most celebrated of his "Redondillas" is that suggested to him by his escape from shipwreck. He also wrote *Canções* on the model of Petrarch's *Canzoni*, odes, sextinas, elegies, stanzas composed in *ottava rima*, eclogues, and 8 comedies, *El Rey Seleuco*, founded upon the well-known anecdote of the king who resigns his wife, Stratonice, to his son Antiochus; *Filodemo*, and *Os Amphitryões*, his most valuable contribution to the Portuguese stage. His fame, however, rests upon his "Lusiad." Patriotism is the leading sentiment of this national poem, which abounds in picturesque descriptions of storms and scenery, and in pathetic allusions to Portugal's influence in extending the area of Christendom. The most remarkable passages are those referring to the tragic end of Inez de Castro, and to Adamastor, the mythological ruler of the sea, who uses his supreme influence for the purpose of stopping the progress of Vasco da Gama. A copy of the 1st edition of the "Lusiad," which appeared in 1572, is in the possession of Lord Holland's family. A magnificent edition was published by Didot in 1817 for the editor, Souza Botelho. His complete works were edited by Barreto Feio and Monteiro, Hamburg, 1884. The best English translation is that of Mickle. The Spanish translators are Gomez de Tapia, Garzes, and Lamberto Gil. The French translation is by Millié, the German by Donner, the Italian by Nervi, and the Polish by Przybylski.

**CAMP**, a place of repose for troops, whether for one night or a longer time, and whether in tents, in bivouac, or with any such shelter as may be hastily constructed. Troops are cantoned when distributed among villages, or when placed in huts at the end of a campaign. Barracks are permanent military quarters. Tents were deemed unwholesome by Napoleon, who preferred that the soldier should bivouac, sleeping with his feet toward the fire, and protected from the wind by slight sheds and bowers. Major Sibley, of the American army, has invented a tent which will accommodate 20

cavalry soldiers, with their accoutrements, all sleeping with their feet toward a fire in its centre. Bivouac tents have been introduced into the French service since 1837. They consist of a tissue of cotton cloth impregnated with caoutchouc, and thus made water-proof. Every man carries a portion of this cloth, and the different pieces are rapidly attached together by means of clasps. In the selection of a camp, good water within a convenient distance is essential, as is the proximity of woods for firewood and means of shelter. Good roads, canals, or navigable streams are important to furnish the troops with the necessities of life, if they are encamped for a long period. The vicinity of swamps or stagnant water is to be avoided. The ground to be suitable for defence must admit of manœuvres of troops. As far as possible the cavalry and infantry should be established on a single line, the former upon the wings, the latter in the centre. The shelters or huts are arranged, as nearly as the nature of the ground admits, in streets perpendicular to the front, and extending from one end of the camp to the other. In arranging a camp, however, no universal rule can be laid down, but the commander must decide according to circumstances whether to form his army in 1 or 2 lines, and upon the relative positions of infantry, cavalry, and artillery. The guards of camps are: 1, the camp-guard, which serves to keep good order and discipline, prevent desertions, and give the alarm; 2, detachments of infantry and cavalry, denominated pickets, stationed in front and on the flanks, which intercept reconnoitring parties of the enemy, and give timely notice of a hostile approach; and 3, grand guards, or outposts, which are large detachments posted in surrounding villages, farm-houses, or small field works, from which they can watch the movements of the enemy. They should not be so far from the camp as to be beyond succor in case of attack. Immediately after arriving on the ground, the number of men to be furnished for guards and pickets are detailed; the posts to be occupied by them are designated; the places for distribution of provisions mentioned; and, in general, all arrangements made concerning the interior and exterior police and service of the camp.—One of the most ancient camps mentioned in history is that of the Israelites at their exodus from Egypt. It formed a large square, divided for the different tribes, had in the middle the camp of the Levites with the tabernacle, and a principal gate or entrance, which, with an adjacent open space, was at the same time a forum and market-place. But the form, the dimensions, and the intrenchments of the regular military camps of the Hebrews, or their enemies, can scarcely be traced.—The camp of the Greeks before Troy was close upon the sea-shore, to shelter their ships drawn upon the land, divided into separate quarters for the different tribes, and fortified with ramparts fronting the city and the sea, and externally with a high mount

of earth, strengthened with wooden towers against the sallies of the besieged. The bravest of their chiefs, as Achilles and Ajax, were posted at the extremities. The camp of the Lacedæmonians was circular, and not without the regular precautions of sentries and videttes.—The Roman camp varied according to the season of the year, the length of time it was to be occupied, the number of legions, as well as the nature of the ground, and other circumstances. A historian of the time of the empire mentions camps of every shape, circular, oblong, &c.; but the regular form of the Roman camp was quadrangular. Its place was determined by augurs and according to the 4 quarters, with the front to the rising sun; it was measured with a gnomon; a square of 700 feet was regarded as sufficient for 20,000 men. It was divided into an upper and lower part, separated by a large open space, and by 2 chief lines (*decumana* and *cardo*), running from E. to W., and from N. to S., and by several streets. It had 4 gates, the principal of which were the *decuman* and the *prætorian*, which no soldier could pass without leave, under pain of death, and was surrounded with a rampart, separated by a space of 200 feet from the inner camp, a ditch, and a mound of earth. All these intrenchments were made by the soldiers themselves, who handled the pickaxe and the spade as dexterously as the sword or the lance; they levelled the ground, and fixed the palisades, which they carried along, around the intrenchments into a kind of hedge of irregular points. In the middle of the upper division was the pavilion of the general (*prætorium*), forming a square of 200 feet; around it the *auguraculum*, the *quæstorium*, or quarters of the treasurers of the army, the *forum*, serving as a market and meeting place, and the tents of the *legati*, those of the tribunes opposite their respective legions, and of the commanders of foreign auxiliary troops. In the lower division were the tents of the inferior officers and the legions, the Roman horse, the *triarii*, the *principes*, the *hastati*, &c.; and on the flanks the companies of foreign horse and foot, carefully kept apart. The tents were covered with skins, each containing 10 soldiers, and their *decanus*; the centurions and standard-bearers at the head of their companies. In the space between the 2 divisions, which was called *principia*, were the platform of the general, for the exercise of justice as well as for harangues, the altar, the sacred images, and the not less sacred military ensigns. In exceptional cases the camp was surrounded with a wall of stones, and sometimes even the quarters of the soldiers were of the same material. The whole camp offered the aspect of a city; it was the only fortress the Romans constructed. Among the most permanent memorials of the Roman occupation of Britain is the retention of the Latin *castra* (camp), as, in whole or part, the name of a great number of places first occupied by them as military posts, as Doncaster, Leicester, Worcester, Chester, Winchester, &c.—The camps

of the barbarous nations of antiquity were often surrounded with a fortification of wagons and carts, as for instance, that of the Cimbri, in their last battle against the Romans (101 B. C.), which camp was so fiercely defended, after their defeat, by their wives.—An *INTRENCHED CAMP* is a camp surrounded by defensive works, which serves also as a fortification, and is intended accordingly for prolonged use.

**CAMPAGNA**, a town of Naples, the see of a bishop, 20 miles E. of Salerno, built in the midst of lofty mountains, and containing a cathedral, churches, convents, a college, &c. Pop. 6,750.

**CAMPAGNA DI ROMA**, the plain surrounding Rome. It nearly coincides with the ancient province of Latium, and is bounded N. by the Tiber and Teverone, E. by a branch of the Apennines, S. and S. W. by the Mediterranean, and is about 65 m. long by 45 broad. The land is very plainly volcanic, the lakes lying in craters, and some of them, as Lake Regillus, having a regular conical form. The north and north-eastern part of the Campagna, lying on the slopes of the Apennines, is pleasant and salubrious, but the lowlands are afflicted by a malaria which is disastrous to the life and health of laborers. The Campagna includes the well-known Pontine marshes, which cover a plain some 24 m. long, and from 8 to 10 m. in breadth. These marshes were formed by several small streams, Ufens, Nymphæus, Amasenus, and some others, which, finding no outlet to the sea, spread over the land. As late, however, as 812 B. C., it must have been dry, for the Appian way was then carried over this portion of the Campagna. In the course of 150 years the marshes spread out to their present extent. Attempts were made to drain them by Julius Cæsar and by Augustus. A canal was constructed parallel to the Appian way, and Horace speaks of travelling on it in the year 87 B. C. In A. D. 1778 Pius VI. commenced draining the swamp, but without much benefit to the health of the inhabitants. Hot sulphur springs are found between Rome and Tivoli. In early days the Campagna was peopled with many small cities. Of the inhabitants, the Albans were the most powerful. When the Romans conquered them, these cities were destroyed. They were afterward re-peopled from the capital, but rebelling, were punished, and finally were left entirely desolate. In the time of Diodorus, 44 B. C., there was noticeable a decay and desolation in many parts of Italy. Strabo, in A. D. 25, also spoke of this fact. According to Pliny, the farms in the Campagna belonged to proprietors who resided in the city, and left them to the labor of slaves and the care of overseers. Among these slaves, every thing was done to encourage celibacy. Pliny states that C. Cæcilius Claudius Isidorus died, leaving 4,116 of them. The climate of this region around Rome has considerably changed since the palmy days of the city. In the year 480

B. C. there was snow upon the ground for 40 days, and now it is rarely present for so long a time as 2 days. During the winter and early spring the vegetation is rich and flourishing, but in summer the Campagna has a dry and barren appearance. The laborers for the farms are peasants from the hills, strong, hardy men, but many of them are always more or less affected by the malaria. The Campagna is divided judicially into the Comarca di Roma, and Frosinone. The principal modern towns are Tivoli, Velletri, Frascati, Terracina, Ostia, and Palestrina. The great interest felt concerning this plain arises from the situation of Rome, whose ruins lie scattered on every side. Across the desolate Campagna stretch the long lines of the aqueducts, whose broken and now useless arches fitly represent the state to which the "mistress of the world" has fallen.

**CAMPAIGN.** This term is very often used to denote the military operations which are carried on during a war within a single year; but if these operations take place on 2 or more independent seats of war, it would be scarcely logical to comprise the whole of them under the head of one campaign. Thus what may be loosely called the campaign of 1800 comprises 2 distinct campaigns, conducted each quite independently of the other: the campaign of Italy (Marengo), and the campaign of Germany (Hohenlinden). On the other hand, since the almost total disuse of winter quarters, the end of the year does not always mark the boundary between the close of one distinct series of warlike operations and the commencement of another. There are nowadays many other military and political considerations far more important in war than the change of the seasons. Thus each of the campaigns of 1800 consists of 2 distinct portions: a general armistice extending over the time from July to September divides them, and although the campaign of Germany is brought to a close in Dec. 1800, yet that of Italy continues during the first half of Jan. 1801. Clausewitz justly observes that the campaign of 1812 does evidently not end with Dec. 31 of that year, when the French were still on the Niemen, and in full retreat, but with their arrival behind the Elbe in Feb. 1813, where they again collected their forces, the impetus which drove them homeward having ceased. Still, winter remaining always a season during which fatigue and exposure will, in our latitudes, reduce active armies at an excessive rate, a mutual suspension of operations and recruiting of strength very often coincide with that time of the year; and although a campaign, in the strict sense of the word, means a series of warlike operations closely connected together by one strategical plan and directed toward one strategical object, campaigns may still in most cases very conveniently be named by the year in which their decisive actions are fought.

**CAMPAN,** a French town, pop. estimated at from 8,000 to 4,500, in the department of Hautes

Pyrénées, in the valley of the same name. The valley is bounded by Mont Aigre, traversed by the river Adour, contains the ancient convent of Medous, the priory St. Paul, and the village l'Esponnes; is celebrated for its picturesque scenery, for its stalactite grotto, and for its quarries of green, red, and Isabel marble, which extend along the Adour and the road leading to Bagnères de Bigorre. Jean Paul Richter's *Campanerthal* was inspired by the beauties of this valley.

**CAMPAN, JEANNE LOUISE HENRIETTE GENEST,** a French teacher, born Oct. 6, 1752, in Paris, died March 16, 1822, at Mantua. She was appointed reader to the daughters of Louis XV. when only 15, and after her marriage with M. Campan, attached to the person of Marie Antoinette. She showed great devotion to her royal mistress during the revolutionary troubles, and barely escaped with her life on the storming of the Tuileries. Bereft of all her fortune by the revolution, she opened a young ladies' boarding school at St. Germain in 1796, secured the patronage of Mme. Beaubarnais, afterward the empress Josephine, attracted the attention and won the esteem of Napoleon, by whom she was, in 1806, appointed superintendent of the school he founded at Ecouen for the daughters, sisters, and nieces of officers killed on the battle-field, over which she presided 7 years until it was suppressed by the Bourbons. She was the sister of M. Genest, the French republican minister to the United States, during the 2d administration of Washington. Her works upon education scarcely rise above mediocrity; but her *Journal anecdotique*, her *Correspondance inédite avec la reine Hortense*, and her *Mémoires sur la vie privée de Marie Antoinette* are full of interest.

**CAMPANA,** a town of Spain, in Andalusia, pop. nearly 6,000; 87 m. E. N. E. of Seville, on the river Madre, near its junction with the Guadalquivir. It has remains of Moorish architecture, one parish church, several monasteries, and 5 schools.

**CAMPANA,** a village in the province of Verona, in Lombardy. A victory was gained here by the French, under Bonaparte, over the Austrians, Nov. 21, 1796.

**CAMPANELLA, TOMMASO,** an Italian philosopher, born at Stilo in Calabria, Sept. 6, 1568, died in Paris, March 21, 1689. When very young he displayed unusual aptitude for learning, especially languages. His father wished to send him to Naples to fit himself for a lawyer, but he followed his own predilections, and joining the Dominicans, pursued the study of theology. When but 17 years of age, studying at Cosenza, his professor was engaged to take part in a discussion upon philosophy with the Franciscans; but being somewhat unwell, sent young Campanella in his place, who astonished his audience by the force of his argument against Aristotle. In 1590, he published his own opinions; the work gained him some admirers, but so many enemies that he left Naples

and went successively to Rome, Venice, Florence, Padua, and Bologna. In 1598 he returned to Naples, and went thence to his native place. Being suspected of joining a conspiracy against the Spanish government, he was seized and put to the rack 7 times, and was finally carried to Spain and imprisoned. In the year 1626 Pope Urban VIII. obtained his extradition from Philip IV. of Spain, and he was transferred to the inquisition at Rome. He was set at liberty in 1639. But the Spaniards looked upon him with hostile feelings, and in 1634 he fled to France. Landing at Marseilles, Peiræos invited him to Aix, where he spent a few months, and thence went to Paris. By the aid of Richelieu he received from Louis XIII. a pension of 2,000 livres. He entered a Dominican convent, where he ended his life. Campanella had talents, but his imagination held too strong a sway over his reasoning powers. He was distinguished rather for undermining other systems than for raising one of his own. His most celebrated works were written during his imprisonment. Among them are the following: *Philosophia Rationalis*; *Universalis Philosophia*; *Apologia pro Galileo*, 1622, 4to; *De Prædestinatione, Electione, Reprobatione, et Auxiliis Divinae Gratiæ, contra Thomisticos*, Paris, 1636; *De Monarchia Hispanica*, translated into English, Lond. 1634.

**CAMPANHA**, a city of Brazil, pop. 6,000, in the province of Minas Geraes, on the left bank of the Palmello, with churches, schools, a hospital, and some other institutions.

**CAMPANI, MATTEO AND GIUSEPPE**, two brothers, natives of the diocese of Spoleto, Italy, lived in the latter half of the 17th century. Matteo, the elder brother, or Campani Alimenis, as he was called, held the curacy of a parish in Rome. Both of them are known in science as opticians. Matteo was the inventor of illuminated clock dials, and celebrated for being the first to grind object glasses of great focal length—205 palms, or 160 feet focal distance, being the largest. With Campani's object glasses, 2 of the satellites of Saturn were discovered. Campani also made some experiments with triple eye-glasses, to destroy chromatic aberration. The thermometrical irregularities of pendulum vibrations also engaged his attention. The younger brother, Giuseppe, was also an optician and astronomer, and constructed his own telescopes.

**CAMPANIA**, a portion of ancient Italy, lying S. E. of Latium, from which it was separated by the river Liris. Samnium bounded it on the N. and E., Lucania on the S. E., and the Tyrrhenian sea on the S. and W. The largest river of Campania was the Volturnus; the smaller streams were the Liris, Ofantius, Sarno, Silarus, and Sebethus. It also contained several lakes, most of them filling the craters of extinct volcanoes. The largest of them were Acherusia, Literna, Lucrinus, and Avernus, on the W. of the Monte Nuovo. Within its borders stands Mount Vesuvius, and there are the bur-

ied cities of Herculaneum and Pompeii. Beside these, its principal cities were Baiæ, Nuceria, Neapolis, Salernum, and Capua, which was founded by the Etruscans, who named it after their leader Capys, a companion of Æneas. In the year 420 B. C., it was subjugated by the Samnites; in 343 B. C. it was received into the protection of Rome, but revolted to Hannibal after his victory at Cannæ, 216 B. C. It was retaken 211 B. C., and punished by the Romans, its senators being executed, and many of the inhabitants sold into slavery. The first inhabitants of Campania were Ausones and Osci or Opici, subsequently conquered by the Etruscans. In the time of the Romans, the Sidicini dwelt in the N. W. near the frontier of Samnium, and the Picentini inhabited the S. E. portion of the country. The region of Campania is decidedly volcanic, and the soil extremely fertile. In some parts crops are harvested 3 times in a year. This fertility, joined with an equable climate, an air mildly tempered by soft sea-breezes, and the most beautiful scenery, gave the title Felix to the land, which it still retains, being now the *Campagna Felice* of Naples.

**CAMPANILE** (Ital. *campana*, a bell), a bell tower, either attached to a church, or an independent edifice. The most remarkable specimens are those at Cremona, Florence, Pisa, Bologna, Padua, and Ravenna. The tower at Cremona is 396 feet high, 498 steps leading to the summit. It was begun in 1283, and the bells were cast in 1578. In the 8d story is a very large astronomical clock, built in 1594. The one at Florence was commenced by Giotto in 1334; after his death, the tower was continued by Taddeo Gaddi. It is 275 feet in height, and has 4 stories, of which the 1st and 4th are higher than either of the other 2. On the basement story are 2 ranges of tablets in relief, designed by Giotto, and executed partly by him, and the remainder by Andrea Pisano and Luca della Robbia. Above these are 16 large statues, 4 on each side of the tower. The cost of this campanile was very great, about 1,000 florins for each braccia, which is 2 feet square. The leaning tower of Pisa was begun in 1174 by Bonannus of Pisa, and William of Innspruck. It is 178 feet high, cylindrical in form, and 50 feet in diameter. The summit is reached by 880 steps. The fact which gives it the name by which it is so well known, is that it leans 18 feet from the perpendicular. This fault was manifest before its completion, and was guarded against by extra braces, and an adaptation of the stone in the highest portion. The 7 bells on the top, the largest of which weighs 12,000 lbs., are so placed as to counteract by their gravity the leaning of the tower. The Garisenda at Bologna is 153 feet high, and leans 8 feet 6 inches. The Asinelli at the same place is 871 feet in height, and leans 8 feet 6 inches. The Seville cathedral has a campanile 350 feet high, completed by Guiver the Moor in 1568. This tower is called La Giralda,



from a brazen figure in the top, which weighs a ton and a half, yet turns with the wind.

**CAMPANILE**, an Italian missionary, born in 1762 near Naples, died in the latter city, March 2, 1835. At an early age he entered the order of St. Dominic, and was employed in teaching in the different houses of the Dominicans. A desire to preach the gospel to the heathen made him enter the college of the propaganda at Rome, where he learned Arabic. In 1802 he was named prefect of the missions of Mesopotamia and Koordistan, and through his zeal and activity 10 large villages joined the Roman Catholic church. In 1815 he returned to Naples, and was appointed professor of Arabic in the university. In 1818 he published a history of Koordistan and of its different religious sects, containing many details respecting the customs and usages of the country, which are considered highly interesting.

**CAMPANUS, JOHANNES**, an Italian mathematician, author of the first translation of Euclid that was printed, born at Novara, probably in the 12th century. His translation was from the Arabic, and was printed by Ratdolt at Venice, in 1482.

**CAMPBELL**, the name of counties in several of the United States. I. A southern county of Virginia, lying between James river on the N. and Staunton river on the S., and comprising an area of 576 sq. m. It has an uneven surface, and a fertile soil. Productions in 1850, 2,534,730 lbs. of tobacco, 339,267 bushels of corn, 100,500 of wheat, 167,254 of oats, and 2,168 tons of hay. There were a number of mills and factories, 42 churches, and 994 pupils attending public and other schools. Value of real estate in 1856, \$5,692,854. Iron ore is obtained in some places, and granite is abundant. Oak and pine forests cover much of the hilly part of the county. Organized in 1784, and named in honor of Gen. William Campbell, an officer of the revolution. Capital, Campbell Court House. Pop. in 1850, 230,245, of whom 10,866 were slaves. II. A central county of Georgia, with an area of 360 sq. m., intersected by the Chattahoochee river. It has an irregular surface, and embraces several varieties of soil. The soil of the river bottoms consists of a black loam, and yields good crops of grain and cotton. The productions in 1850 amounted to 271,500 bushels of corn, 27,236 of oats, 44,434 of sweet potatoes, and 8,040 bales of cotton. There were 20 churches, and 450 pupils attending public schools. Gold, iron, and soap-stone are the principal minerals. Value of real estate in 1856, \$1,099,222. The county received its name in honor of Duncan G. Campbell, a member of the Georgia legislature. Capital, Campbellton. Pop. 7,470, of whom 1,637 were slaves. III. A north-eastern county of Tennessee, bordering on Kentucky, drained by several affluents of the Cumberland river, and comprising an area of 450 sq. m. The surface is hilly, and the central part traversed by a ridge of the Cumberland mountains. Large forests occupy a considerable portion of the

land. The productions in 1850 were 227,395 bushels of corn, 43,889 of oats, 48,467 lbs. of butter, and 8,167 of wool. The public schools numbered 650 pupils. Capital, Jacksonborough. Pop. 6,068, of whom 318 were slaves. IV. A northern county of Kentucky, with an area of 120 sq. m. It is situated on the bank of the Ohio, nearly opposite Cincinnati, is bordered on the W. by the Licking river, has an excellent soil, and produced in 1850, 801,125 bushels of corn, 9,988 of wheat, 37,759 of oats, and 23,108 lbs. of tobacco. The surface consists of level bottom lands, and gently undulating tracts of upland. The county was organized in 1794, and named in honor of Col. John Campbell, a former member of the state senate. Capital, Alexandria. Pop. in 1850, 13,127, of whom 177 were slaves.

**CAMPBELL, ALEXANDER**, founder of the religious sect called "Disciples of Christ," president of Bethany college, Va., born in 1792. He was originally a Presbyterian, but withdrew from that church in 1812, and received baptism by immersion the same year. In connection with his father, Thomas Campbell, he formed several congregations, which united with a Baptist association, but protested against all human creeds as a bond of union, accepting the Bible alone as the rule of faith and practice. He met with much opposition in the assertion of this principle, and in 1827 he was excluded from the fellowship of the Baptist churches. His followers now began to form into a separate body, and in 1838 were supposed to number at least 100,000 souls. They have prevailed especially in the states of Virginia, Tennessee, and Kentucky. In 1841 Mr. Campbell founded Bethany college in Bethany, Va., which has about 150 students. A complete history of the reform to which he was devoted may be found in the "Christian Baptist and Millennial Harbinger," a periodical edited by him in Bethany.

**CAMPBELL, ARCHIBALD**. See ARGYLE, DUE OF.

**CAMPBELL, ARTHUR**, an American colonel, born in 1742, in Augusta co., Va., died in 1816, in Knox co., Ky. Enlisting at 15 as frontier militiaman, he was captured by the Indians around lakes Erie and Michigan, adopted by one of the chiefs, and humanely treated. He escaped after 8 years' captivity, his family having long supposed him dead. At the commencement of the revolution he espoused the American cause, and was successively major, lieutenant-colonel, and colonel in the army. He was elected to the assembly of his native state, and assisted in the framing of her constitution.

**CAMPBELL, SIR COLIN**, a British general, born in Glasgow in 1791, entered the military service in 1808; served in Portugal and at Walcheren; was wounded on several occasions during the peninsular war; served in the war with the United States, in 1814 and 1815; aided, in 1823, in quelling an insurrection at Demerara; was actively engaged in the Chinese

war of 1842; in the second Punjaub campaign, under Lord Gough, in 1848 and 1849, commanded a division of infantry at the battles of Ohlianwallah and Goojerat, and at other engagements; was wounded at the former battle; assisted afterward in the pursuit of Dost Mohammed and the occupation of Peshawar; held the command of the troops in that district; undertook, in 1851 and 1852, various successful operations against the turbulent tribes of the adjoining mountain regions; and received, on his return to England, the thanks of the British parliament, and of the East India company, for his services. In 1854, he proceeded to the Crimea, in command of the Highland brigade, which, with the guard, formed the duke of Cambridge's division, which took a conspicuous part in deciding the battle of the Alma, Sept. 14, 1854. At Balaklava, on Oct. 25 following, the Russian cavalry were repulsed by "the thin red line" of his Highlanders. On Sept. 8, 1855, after the unsuccessful attack on the Redan, Sir Colin was ordered by Gen. Simpson to renew the attack, which, however, was rendered unnecessary by the desertion of the works by the Russians. In 1856, after his return to England, he became inspector-general of infantry, and held this office until the end of June, 1857, when, on the death of Gen. Anson, he proceeded to India, at 24 hours' notice, to assume the supreme command in Bengal, arriving at Calcutta Aug. 14, 32 days after the issue of his commission, which bore the date of July 18. Considerable additions to the army having begun to arrive in the course of October, Sir Colin hastened to Lucknow, the seat of the sepoy rebellion; reached Benares Oct. 31, crossed the Ganges Nov. 11, and arrived at Alumbagh on the evening of the 12th. After an encounter with a body of 2,000 rebels, he left one of his regiments in garrison at that place, and resumed his march on the 14th; was received on his approach toward the pleasure ground of Dilkhoosha by the fire of the enemy; succeeded, however, in routing them, though not without the loss of some brave officers and soldiers, and advancing against Secunderbagh (a walled enclosure carefully loopholed), a narrow breach was effected, enabling the British forces to make terrible havoc among the rebels, 2,000 of whom were killed. On the following day (Nov. 21), the mess-house was taken, the troops bursting into the enclosure round the Motee Mehal (the Pearl Palace), where the rebels made a last stand, and soon a communication was opened with the residency, permitting the late Sir Henry Havelock and Sir James Outram to welcome their deliverers the same afternoon. Sir Colin, however, recognized at once the impossibility of holding Lucknow in the face of the overwhelming masses of the rebels, but masking his real designs by opening a terrible fire on the Kaiserbagh, he succeeded in dividing the insurgents' attention, and while they were preparing for the anticipated assault, the garrison withdrew during the night of the 22d, through the lines

of pickets. Toward the afternoon of the 24th, Sir Colin reached Alumbagh, where, on the following day, he was joined by the rear-guard under Sir James Outram, and hastening on toward Cawnpore, where Havelock had died, arrived at the Pandoo Nuddee, within a few miles from thence, on Nov. 26. Sir Colin came in time to save the beleaguered British from destruction. A force of 14,000 sepoyas, with numerous cavalry and 40 pieces of artillery, was threatening an army of but 2,000 Europeans under Gen. Windham. Forced to retire within their intrenchments, the British suffered severely from the fierce assault of the rebels, and were almost entirely at their mercy when, alarmed by the long-continued sounds of firing, Sir Colin Campbell crossed the Ganges, and soon drove the rebel force before the intrenchments, capturing 16 of their guns. His first care was to have the women and children and the wounded sent under safe escort to Allahabad, whence they were forwarded to Calcutta; and turning his attention next to the enemy, he commenced the attack in the forenoon of Dec. 6, shelling them out of the town, falling on them with his infantry, and forcing them to take for safety to the Ganges, whence they reached the other side, on their flight into Oude. According to last accounts (August, 1858), Sir Colin was ardently prosecuting the war in Oude, which, however, has assumed more the character of a guerilla warfare, the army organization of the mutineers having been broken.—Sir Colin, not having had aristocratic family influence to assist him in his career, and having entered the service as an ensign in the 9th regiment of foot, attained to the rank of lieutenant-general only in 1856, after his return from the Crimea, and after a whole life incessantly spent in the service. Having previously been made knight-commander of the bath, he was in the same year rewarded with the grand cross of the bath, with 2 Sardinian orders, and the cross of the French legion of honor; and in 1858 he was promoted to the rank of general, and to the peerage under the title of Baron Clyde of Clydesdale.

CAMPBELL, GEORGE, a Scotch Presbyterian divine, born Dec. 25, 1719, died April 6, 1796. Left an orphan at the age of 9, he was educated at Marischal college, and apprenticed to the law, but afterward devoted himself to theology. The presbytery of Aberdeen licensed him in 1746; he was ordained to the pastoral charge of a parish near Aberdeen in 1750, presented in 1756 to one of the churches in Aberdeen, elected in 1759 regent of Marischal college, and made doctor of divinity by King's college, and chosen in 1771 professor of divinity in Marischal college. He published in 1768 his "Dissertation on Miracles," in reply to Hume, and his "Philosophy of Rhetoric" in 1776. He also published a translation of the Gospels, which increased his literary and theological reputation. His "Lectures on Ecclesiastical History" were posthumous; they were marked with a violent

feeling of opposition to Episcopacy, and received much censure in the "Anti-Jacobin Review" (1801). On the occasion of his resignation, in 1795, he received a pension of £800 a year from the government.

CAMPBELL, GEORGE W., an American statesman, born in Tennessee about 1768, died Feb. 17, 1848. Commencing his political career in 1808, he served in the U. S. house of representatives till 1809, in the senate from 1811 to 1818, with one year of intermission (1814), during which he was secretary of the treasury. He left the senate in 1818 to become minister plenipotentiary and envoy extraordinary to Russia.

CAMPBELL, JOHN, a political and historical writer, born in Edinburgh, March 8, 1708, died Dec. 28, 1775. He was intended for the law, but became a writer in the varied departments of biography, history, politics, and statistics. Commencing at the age of 28, his literary career ended only with his life. His first publications were anonymous, and appeared in the following order: "The Military History of Prince Eugene and the Duke of Marlborough" (1786), 2 vols.; his contributions to the "Universal History" (1787-'89); "Travels and Adventures of Edward Brown, Esq." (1789), and "Concise History of Spanish America" (1741). In 1742 he began to put his name to his works; the first was the "Lives of the English Admirals," &c. This work was enlarged from 2 to 4 volumes in 1744, and was swelled to 8 by succeeding authors. In 1745 he began his contributions to the *Biographia Britannica*. In 1750 he published his "Survey of the Present State of Europe," a work which met with considerable success. After the peace of Paris, 1763, he was employed by the British government to write a vindication of it. His last work, "A Political Survey of Great Britain," was pronounced to come altogether short of the expectation raised by its title. In 1755 he was appointed his majesty's agent for the province of Georgia, which office he retained until his death.

CAMPBELL, THE REV. JOHN, a dissenting minister, born in Edinburgh, in 1766, died April 4, 1840. He was apprenticed by his father to a goldsmith and jeweller in Edinburgh, but when about 28 years old he began to give himself to the ministry. His Christian labors and spirit seemed from the beginning to have had a missionary turn. Among his first enterprises was that of undertaking the charge of 24 young Africans who had been brought from Sierra Leone to be instructed in Christianity. He took also an active part in the formation of the British and foreign Bible society in 1804. He was ordained the same year pastor of the Kingsland dissenting church, near London. In 1812 he made a journey to South Africa, to inquire into the religious state of the natives, and the prosperity of the missions among them, and repeated the visit in 1818. On his return, each time, he published an account of his travels and observations. In 1823 he founded the mag-

azine called the "Teacher's Offering," having previously established the "Youth's Magazine," which he edited for 18 years. He also wrote several other works.

CAMPBELL, JOHN, lord, chief justice of the English court of queen's bench, born Sept. 15, 1781, at Springfield, a village near Cupar, Fifeshire, Scotland. His father, the Rev. Dr. George Campbell, was minister for 54 years at Cupar. John was the 2d son, and was educated at the Scottish university of St. Andrew's. He migrated early in life to London, entered as a student at Lincoln's Inn (1800), and was called to the bar in 1806. While pursuing his legal studies, he supported himself by writing law reports, and theatrical criticisms for the London "Morning Chronicle." His industry and talents soon brought him a good practice at the common law bar; nevertheless he found time to publish reports of the principal cases decided in the courts of king's bench and common pleas. In 1821 he married Mary Elizabeth, the eldest daughter of Sir James Scarlett, afterward the first Lord Abinger.—Though he won a prominent place among advocates, yet, as a serviceable member of the whig party, his politics were ungrateful to Lord Eldon, and it was not till 1827 that he received the appointment of king's counsel. In 1830 he was elected M. P. for the borough of Stafford, and in 1832 for Dudley. In November of the latter year he was appointed solicitor-general by the Grey ministry, which office he retained until Feb. 1834, when he was elevated to the rank of attorney-general. He left office with the Grey ministry in Nov. 1834, and at the ensuing general election was returned by the city of Edinburgh, which he continued to represent until his elevation to the peerage. After the resignation of Sir Robert Peel's ministry in 1835, Sir John Campbell regained the attorney-generalship, and remained in possession of it until June, 1841. In the mean time his wife had been raised to the peerage with the title of Baroness Stratheden. In June, 1841, he was appointed lord chancellor of Ireland, and raised to the peerage as Baron Campbell. On the resignation of the Melbourne administration he lost his recently acquired office, Sept. 1841. From this period until 1846, his public life was confined to hearing appeals in the house of lords, and on the judicial committee of the privy council, and acting as one of the leaders of the opposition in the upper house. The leisure that thus fell to him was devoted to literary pursuits, the fruits of which were presented to the world in 1846, in the shape of the "Lives of the Lord Chancellors and Keepers of the Great Seal of England, from the earliest times to the reign of George IV.," in 7 volumes, London, 1846-'47; republished in Philadelphia. The return of the liberal party to power in 1846 gave him the post of chancellor of the duchy of Lancaster, and a seat in the Russell cabinet. In 1849 he published in 2 volumes, "The Lives of the Chief Justices of England,

from the Norman Conquest to the death of Lord Mansfield." A 8d volume, continuing the series down to the death of Chief Justice Tenterden in 1832, appeared in 1857. On the retirement of Lord Denman from the chief justiceship of the queen's bench in March, 1850, Lord Campbell, notwithstanding his great age, accepted that laborious appointment, the duties of which he has discharged and continues to discharge with unflagging industry, up to the present time (1858), together with those attaching to a legal peer in appeal cases, and to a whig leader. Lord Campbell took advantage of the recent great changes in the landed proprietary of Ireland to become a large landowner in the province of Connaught. His intellectual powers are very clear and robust; his manners so plain and even plebeian, as to acquire for him the by-name of "plain Jock Campbell," and his capacity for labor, always immense, is but slowly impaired by the increasing weight of years. He has 3 daughters and 4 sons, the Hon. William Frederic, born Oct. 15, 1824, being the eldest son. His speeches at the bar and in the house of commons have been collected and published (1857).

CAMPBELL, SIR NEIL, a British officer, born about 1770, died in Sierra Leone, Aug. 14, 1837. After serving during several campaigns in the West Indies, he was, in 1811, appointed colonel in a regiment of Portuguese infantry, and took part in the blockade of Almeida, the siege of Badajoz, and the battle of Salamanca. He was subsequently attached to the Russian army to report upon its force and military operations, in which capacity he served till the entry into Paris in 1814. He was appointed by the British government to accompany Napoleon from Fontainebleau to Elba, and during one of his occasional excursions from the island to the adjoining parts of Italy, Napoleon effected his escape. Yet the British ministry did not charge him with lack of vigilance. He subsequently negotiated with Prince Caristi the conditions of the capitulation of Naples to the Anglo-Sicilian forces, and served under the duke of Wellington in Flanders till the 2d entry into Paris. In 1815 he was sent to explore the course of the Niger and to continue the discoveries of Mungo Park. His death was caused by the noxious climate of Sierra Leone, of which place he was appointed governor-general in 1826.

CAMPBELL, SAMUEL, an American officer, born in New Hampshire in 1738, died Sept. 12, 1824. He removed in early life with his father to Cherry Valley, N. Y., where many of his descendants still reside. He took a conspicuous part in the French war, and also in the revolution. He distinguished himself at the battle of Oriskany, under Gen. Herkimer. In 1778, when Cherry Valley was destroyed by Butler and Bunt, Campbell shared in the pecuniary losses of the occasion, and himself and entire family, except his eldest son, were taken captives. After the conclusion of the war, he was faithful

to his republican principles, and was a member of the state legislature.

CAMPBELL, THOMAS, a British poet, born in Glasgow, Scotland, July 27, 1777, died in Boulogne, France, June 15, 1844. His father was a cadet of the clan of Campbells in Kirnan, illustrious from the times of Wallace and Bruce. At the age of 18, already an accomplished scholar in Latin and Greek, he entered the university of Glasgow, where he remained for 6 years, partially supporting himself by private teaching. He was a devoted student, excelled particularly in Greek, and Prof. Young used to advert with delight to his poetical translations of the Greek tragedians as the best that any pupil in the university had ever produced. Among his companions he was known also as a wit and satirist, and his alternations from joyousness to extreme pensiveness enlisted their sympathy and love. On leaving the university he spent a year among the mountains of Argyleshire, amid the wild magnificent scenery which had been the home of his feudal ancestors, where he composed several poems, among which was "Love and Madness," which gave him a local celebrity. From early boyhood he had written verses, and cultivated almost exclusively his taste and imaginative faculty, and he could not now bring himself to adopt any profession. His mind, formed by classical impressions, contemplated with wonder the whirl of innovation and experiment, the wars and philanthropic ideas of the French revolution, and with an enthusiasm for liberty, which he at that time shared with most youthful minds, he went to Edinburgh to devote himself to literature as a profession. He negotiated with publishers, instructed pupils, was not unknown to Jeffrey, Horner, Brougham, and other young men who were about to launch the "Edinburgh Review," but was chiefly interested and employed in composing the beautiful episodes of the "Pleasures of Hope." This poem was published in 1799, and achieved a success unparalleled, perhaps, by a first effort, in the annals of literature. It captivated all readers by its melodious and polished diction, and by its eloquent utterance of the prevailing generous sentiments of the time, and introduced the author at once to fame and society. He thus obtained the means to visit the continent, studied Greek several months at Göttingen under Heyne, witnessed from the monastery of St. Jacob the battle of Hohenlinden, which he has described in his letters and in one of the grandest of his poems, and after making brief and irregular rambles, controlled by the exigencies of war, being checked in his attempt to pass into Italy, and chased into Yarmouth by a Danish privateer, repaired in 1801 to London. He soon after directed his course to Edinburgh by sea, and was surprised to learn from the passengers that the author of the "Pleasures of Hope" had been arrested in London for high treason, was confined in the tower, and expected to be executed. In fact, so suspicious was the British govern-

ment at that time, that it had amplified his association with French officers abroad into a plot, and a warrant was issued for his apprehension as a spy. It was with difficulty that the poet, on arriving at Edinburgh, could satisfy the authorities of his loyalty. During his travels he had composed a few short pieces, among which were his "Exile of Erin," "Lochiel's Warning," and "Ye Mariners of England," but now obtained his livelihood only by fugitive articles for the newspapers and booksellers. A poet by choice, but a prose author from necessity, he removed in 1803 to London, and soon after to Sydenham, where for 17 years he devoted himself to fulfilling contracts with publishers, and to composing, in the intermissions of daily toil, the few poems which confirmed and increased the reputation which his first work had procured him. He had a wife, mother, and sisters dependent on him, and amid alternate seasons of energy and lassitude, hope and despondency, composed an elaborate historical notice of Great Britain for the "Edinburgh Encyclopædia," a "History of the Reign of George III.," frequent contributions to the "Star" newspaper, and collected materials for his "Specimens of the British Poets." Upon the accession of the whigs to power in 1806, he received a pension of £200, and in 1809 published his second great poem, "Gertrude of Wyoming," to which were attached several of his finished and powerful lyrics. In 1812 he lectured on poetry at the royal institution to an illustrious audience, whose approbation he won; in 1814 he visited Paris in company with Mrs. Siddons, where nothing delighted him so much as the masterpieces of ancient art in the Louvre; in 1818 travelled in Germany, and associated with Arndt, the Schlegels, and Humboldt; and on his return to England assumed, on liberal terms, the editorship of Colburn's "New Monthly Magazine," which he retained for 10 years. His poetical labors from this time, with the exception of the "Last Man," which is one of the happiest of his productions, are of little importance. The author of the finest lyrics and perhaps the best didactic poem in the language produced, during his later years, only one or two passages which approached in gracefulness and vigor to his earlier achievements. His "Theodric," published in 1824, was pronounced inferior to his former poems, and his "Pilgrim of Glencoe," which appeared in 1842, was deemed a failure. He was now also interested in other pursuits. He started the project of the London university, which, chiefly through his exertions, was at length successfully established; he was chosen in 1826 lord rector of the university of Glasgow, to which office he was twice reelected; he was severely stricken in 1831 by the capture of Warsaw, and the total defeat of the Poles, the objects of his youthful enthusiasm; and domestic calamities came to complete his desolation. "My wife is dead, my son is mad, and my harp unstrung," was the account which he gave of

himself, and, with his delicate constitution broken, he found himself a prematurely old man, alone in the world. Yet he remained busy to the last, composed biographies of Mrs. Siddons and of Petrarch, travelled in Algeria and wrote pleasant poetical sketches of that country, visited Germany again, and in 1848, from the double motive of health and economy, removed to Boulogne, which he resolved to make his future residence. There he died, after a lingering sickness, solaced by the gentle guardianship of his niece and of his friend and biographer, Dr. Beattie. His poems have retained all their original popularity amid every fluctuation of taste. Though he chastened his style to simplicity with laborious care, and polished his verses till they accorded with a fastidious and Greek taste, yet most of his lyrics and many portions of his two longest poems appeal to the popular mind and feeling, and are treasured in the memory like primitive songs and ballads.

CAMPBELL, LORD WILLIAM, the last of the royal governors of South Carolina, died in 1778. He was the 3d brother of the duke of Argyle, and married a wealthy Carolina lady of the Izard family. He was active in fomenting insurrectionary movements favorable to the crown among the border population and the red men. Detected in this practice, he was expelled from the country by the patriots, and took refuge on board a British man-of-war. In this vessel he threatened the city of Charleston, but the guns of Fort Johnson forced him to retreat. He joined the expedition under Sir Peter Parker against the province, and in the attack on Charleston in 1776 received the wound of which he died.

CAMPBELL, WILLIAM, an officer in the American revolution, born in Augusta, Va., 1745, killed at the battle of Eutaw Springs, S. C., Sept. 8, 1781. He held a captain's commission in the Virginia line, among the earliest troops raised in that state. In 1778 he was promoted to the rank of lieutenant-colonel of the Washington county militia, and soon after to that of colonel. After the battles of King's mountain and of Guilford, in both of which he greatly distinguished himself, he was promoted by the Virginia legislature to the rank of brigadier-general. He led the Virginia troops at the battle of Eutaw, and fell in the shock of the charge with the bayonet. In his dying moments he was told of the defeat of the enemy, and is said to have uttered the celebrated ejaculation of Gen. Wolfe, "I die contented."

CAMPBELLTOWN, a district of Van Diemen's Land, with a settlement of the same name on an affluent of the Macquarria.

CAMPE, JOACHIM HEINRICH, a German author and publisher, born at Deensen in 1746, died in Brunswick, Oct. 22, 1818. He studied theology at Helmstadt and at Halle, and in 1773 was appointed chaplain in the Prussian army; but, moved at the spectacle of human suffering, he turned his mind to the education of youth as the source whence would result the great-

est amelioration of the conditions of life. He succeeded Basedow as principal of the Philanthropinum educational establishment at Dessau, but soon resigned this position and founded a private school at Hamburg. In 1783, feeble health obliged him to live for a time in repose, but in 1787 he was chosen by the government of Brunswick to superintend and reform the schools of that duchy. He became the head of a publishing house there, which issued his numerous works, was afterward conducted by Campe's son-in-law, Mr. Vieweg, and which continues to enjoy a high reputation in Germany under the firm of *Friedrich Vieweg und Sohn*. Campe published a German dictionary, and other works calculated to improve the language. While at Paris in 1789, he published letters in favor of the revolution which attracted much attention. His reputation, however, rests upon his numerous books of travels, and other books of instruction for the young. The immense popularity of his writings may be gathered from the fact that a 57th edition of his *Robinson der Jüngere*, of which translations were made into almost all European languages, was published in 1856, and a 19th edition of his "Discovery of America" in 1858.—August, a nephew of the preceding, born in 1778, died in 1836, became a partner of the famous Hamburg publishing house, under the firm of Hoffmann and Campe, having married the daughter of Hoffmann.—FRIEDRICH, born in 1777, died in 1846, was for some time a member in the firm of his brother August, founded the museum for literature and art in Hamburg, established in 1802 a house in Nuremberg, wrote a book on Albert Dürer and a painters' dictionary, officiated as a magistrate, and was one of the founders of the orphan asylum in the same city, and was the first in 1825 to propose the establishment of the publishers' association of Leipzig, of which he became the first president.—JULIUS, a brother of the preceding, born about 1792, spent the early part of his life in fighting against the French, and assumed in 1828 the conduct of the publishing house of Hoffmann and Campe, of Hamburg, his brother August having then withdrawn from the firm. Julius Campe was a personal friend of Heine and Börne, and, as the publisher of their works, became involved in difficulties with the government, which took objections against the circulation of some of Börne's writings. In 1848 some of the works which came from Campe's press were stopped by the authorities, and again in 1855 he subjected himself to arrest and to the payment of a fine by bringing out Vohse's history of the German courts.

CAMPEACHY, the principal seaport town of Yucatan in Mexico, on the W. coast of the peninsula, in lat. 19° 50' N. and long. 90° 28' W.; pop. about 15,000. It is entirely surrounded by mountains and is enclosed by 4 bastioned walls. Its harbor has a pier 50 yards in length, but on account of the shallowness of the water only the lighter vessels can pass within it, the

others being obliged to anchor outside. The coast is ill supplied with water, and the inhabitants are often obliged to bring it from long distances. Agues prevail during the rainy season, but at other times the climate is healthy, and the heat mollified by the land breeze in the morning and the sea breeze in the evening. The markets are generally well supplied, but the prices of food are much higher than in other parts of the state. The streets are narrow, crooked, ill-paved, and dirty. The private houses, which are seldom of more than 1 story, are built altogether of calcareous stone. The public edifices are constructed of the same material, but are generally 2 stories high, and are painted and ornamented. The windows are unglazed. The alameda, or public walk, is a pleasant promenade, lined with double rows of orange-trees, and furnished with seats. There is a museum containing a fine collection of shells and other objects of natural history, beside many antiquities of Yucatan. It was founded by 2 monks, the brothers Comacho. Campeachy has 2 fine churches, several convents, a hospital, college, and theatre; but its entire importance is due to its trade in logwood or Campeachy wood, the *hamatocylon Campeachianum*, which is found nowhere else in such abundance and perfection. It is exported in logs, which are afterward chipped and used for dyeing. The principal place for cutting it is on the banks of the Rio Champoton, south of the town, and the wood here obtained is sent in large quantities to London, where it commands a higher price than that brought from any other part of the West Indies. Cotton is exported to some extent. Wax is procured in considerable quantities from the wild, stingless bees which abound in the vicinity. The other products are marble, salt, rice, and sugar. No manufacture of any note is carried on except that of cigars. In spite of the shallowness of the harbor, there are ship-building yards in which vessels with 100 feet of keel are constructed, but they can only be floated out by means of mechanical contrivances. Underneath the town are subterranean caverns, constructed by the ancient Mayas, and in the neighborhood many interesting ruins.—Campeachy was founded in 1540, and has suffered many reverses. It was sacked by the English in 1659, and nearly destroyed by pirates in 1678 and 1685. It was the centre of hostilities in the insurrection of Yucatan against Mexico in 1842, and successfully resisted a series of attacks by land and sea.

CAMPEGGIO, LORENZO, an Italian cardinal, born in Bologna in 1474, died in Rome, July 19, 1539. He was educated for the law, married very young, and upon the death of his wife took holy orders. He was appointed by Leo X. to the government of Parma, and was despatched to Germany to combat the progress of Luther. Upon his return he was made cardinal, and was soon after sent to England to induce that country to join the confederation against the Turks.

His mission failed in its main object, but he was made by Henry VIII. bishop of Salisbury. On his return he was again sent as legate to the diet of Nuremberg, accredited with full but fruitless powers to check or uproot Lutheranism. When Henry VIII. determined upon a divorce from his wife Catharine of Aragon, Cardinal Campeggio was again sent to England to hold a legatine court, in connection with Cardinal Wolsey, in which to judge the matter. The appeal of the queen to the pope caused Campeggio to return to Italy, where he assisted at the crowning of Charles V. at Bologna, and upon the death of Pope Clement VII. used his influence successfully in the conclave for the election of Alexander Farnese. Campeggio was the friend of Erasmus, Sadoleto, and other learned men of his time; but of his numerous writings only a collection of letters has been published.

CAMPENON, FRANÇOIS NICOLAS VINCENT, a French poet, born in Guadeloupe, March 29, 1772, died Nov. 24, 1843, at Villeneuve-sur-Corbeil, near Paris. During the early events of the revolution he composed a romance in praise of Marie Antoinette, and was compelled to flee to Switzerland; he published in 1795 a fanciful account, in prose and verse, of his journey. After his return to Paris, he published in 1800 his *Épître aux femmes*, and soon afterward a didactic poem entitled *La maison des champs*. Two years later appeared his *Enfant prodigue*, which had an immense success, and occasioned his nomination and election to the institute of Paris, to succeed Delille.

CAMPER, PIETER, a Dutch physician and anatomist, born in Leyden, May 11, 1723, died at the Hague, April 7, 1789. The son of a wealthy and refined man, who was on intimate terms with Boerhaave and other eminent persons, he was early encouraged in his studious habits, and applied himself diligently and with much success to different branches of literature and art. He had acquired at the age of 20 considerable skill in the art of drawing. He was instructed in drawing by Moor, and in geometry by Laborde. On entering the university of Leyden he devoted himself with assiduity to the study of medicine. In 1746 he received his degree of doctor of medicine. Two years later, having lost his parents, he travelled through England, France, and Switzerland, visiting museums and collections of art, making the acquaintance of eminent men in all departments of learning, and competing for the prizes offered by academic and scientific bodies in large cities. In England he remained about a year, during which time he became acquainted with many of the eminent men of science and institutions of that country. During his absence from home, in 1749, he was appointed professor of philosophy, medicine, and surgery at Franeker. In 1753 he was named professor of anatomy and surgery at the atheneum of Amsterdam. In 1758 he was appointed to the chair of medicine in the same establishment. In 1761 he resigned these functions to pursue his studies more at

leisure, while residing in the house of Klein Lankum, near Franeker; and during this time he was elected a member of the assembly of the states of the province of Friesland. Two years later he resumed his professional career, and was appointed to the chair of medicine, surgery, anatomy, and botany at the university of Groningen. In 1778 he resigned this chair, and some time after he was named a member of the state council of the united provinces; which dignity he held at the time of the memorable events of 1786. He was attached to the party of the stadtholder; but the political measures of the victorious party gave him much displeasure and depressed his spirits. He fell into a state of melancholy which precipitated his death. No man had more success than Camper during his own lifetime. In 1772 he obtained a prize from the academy of sciences of Paris, and an "accessit" in 1776; a prize from the academy of Dijon in 1779; from that of Lyons in 1778, and that of Toulouse in 1774. He also obtained prizes from the societies of Haarlem and Edinburgh, and the academy of surgery. He was a member of the academies of Berlin and St. Petersburg, and of the societies of London and Göttingen. In 1785 he was elected foreign associate of the academy of sciences of Paris, he and the celebrated Boerhaave being the only Hollanders who had obtained that honor. In 1761 Camper discovered and described the organs of hearing in fishes, which had only been superficially and incorrectly indicated by Geoffroy. In 1771 he discovered that the hollow bones of birds were in direct communication with the respiratory organs. Gabbé had already observed that these bones in birds contained no marrow, and he surmised that this peculiarity was a condition of stability; but Camper showed that the air of the lungs, penetrating into these cavities of the bones, subserved a special purpose in rendering the body specifically lighter as a means of rising in the air, and enabling the bird to fly. In 1774 John Hunter made the same observation, and described this peculiarity in the anatomy of birds; and hence many English anatomists ascribe the discovery to him, which really belongs to Camper. Camper was the first to show that the ancient anatomical descriptions of the ape apply to a species of orang-outang. He was one of the earliest ethnological students who have attempted to illustrate the varieties of the human race. His dissertation on this subject makes the shape of the skull the basis of classification; and, though more recent inquiries have thrown fresh light on the science, his views have the merit of being not only original, but ingenious and acute. In his work on the natural differences of features in persons of various countries and ages, he explains the characteristic form and expression of countenance from the facial angle. He was the first who gave a correct description of the osteology of the rhinoceros, the dugong, and many other animals of different types belonging to living and

extinct species; giving an impetus to the study of comparative anatomy, which has since become a science of so much importance. He pointed out the astonishing analogies which link together the whole chain of vertebrated animals, men, apes, quadrupeds, birds, reptiles, and fishes, showing how easily, as he observes himself, "the type of a cow may be metamorphosed into that of a bird, and the form of a quadruped into that of a man."—None of his works are voluminous, but they are exceedingly numerous. Of his *Demonstrationes Anatomico-pathologicae* only 2 parts appeared, the one containing the structure and diseases of the human arm, the other the structure and diseases of the pelvis. He published separate and very interesting dissertations on several medical topics, together with a series of memoirs for different learned societies. Among the principal of these are essays on inoculation for small-pox; on the origin and color of negroes; on the signs of life and death in new-born infants; on infanticide, with a project for the establishment of a foundling hospital; on the causes of infanticide and suicide; on the intromission of air into the lungs of new-born children; on the operation of lithotomy, at 2 different times, according to the celebrated Franco (*à. a.* on the first day the surgeon makes the incision into the bladder, the patient is then put to bed, and the extraction of the stone is deferred to the 2d, 3d, or 4th day), &c.—In 1803 a collection of his works was published at Paris, in 8 vols. 8vo. with a folio atlas of plates.

**CAMPERDUIN**, a seacoast village of the Netherlands, in North Holland, 27 miles N. W. of Amsterdam, celebrated for the naval victory gained here, Oct. 11, 1797, by the English fleet under Admiral Duncan, over the Dutch commanded by De Winter. This victory gave to the conqueror the title of viscount of Camperdown.

**CAMPHAUSEN**, LUDOLF, a Prussian statesman, born Jan. 8, 1803, at Hünshoven, near Aix la Chapelle; established himself as a banker in Cologne in 1825, in partnership with his brother; put himself at the head of railway enterprises in Prussia; advocated the principles of free trade; in 1839 was made president of the Cologne chamber of commerce; established in 1841 the Cologne steam-tug company, and was in the same year sent as representative to the diet of the Rhenish provinces, where he became conspicuous. He was a member of the united diet of 1847, and of the *Ständesausschuss* of 1848. On March 29, 1848, he became prime minister of Prussia, but relinquished his office on June 20 of the same year. He refused to accept the speakership of the Prussian national assembly which was tendered to him, and also refused the overtures made to him by the vicar of the German empire; but accepted the office of Prussian ambassador near the Frankfort parliament, in which capacity he opposed all measures calculated to impair the preponderance which he claimed for Prussia in the councils of Germany. On Jan. 23, 1849, he proposed the

formation of a national league, the principal object of which was to Prussianize Germany. But when, in April, the accession of Count Brandenburg to the helm of affairs proclaimed the supremacy of the military element in Prussia, Camphausen again tendered his resignation. In his subsequent political career in the Prussian assemblies and Erfurt parliament, he remained faithful to constitutional principles, and when the conferences of Warsaw and Olmütz, in 1851, made it evident that no effort of his could stay the reactionary policy which had resumed its sway in Prussia, he withdrew from politics, and returned to his office in Cologne, where, under the firm of A. and L. Camphausen, he continues in the banking business.—**WILHELM**, a painter of battle pieces of the school of Düsseldorf, where he was born Feb. 8, 1818. In order to familiarize himself with the characteristics of battlefields he served for some time as a volunteer in the army, and his first productions, "Tilly at Breitenfeld," and "Prince Eugene at Belgrade," were successful with the public. On his return to Düsseldorf, he painted "Godfrey de Bouillon at Ascalon," "Puritans watching the enemy," "A Convoy of Prisoners of Cromwell's Camp," now in the gallery of Louis I. of Bavaria, "Storming of an English Castle by the Soldiers of Cromwell," "Charles II. on his Flight from the Battle of Worcester," &c. One of Camphausen's more recent works is "Charles I. at Naseby."

**CAMPHENE**, **CAMPHEGEN** (Gr. *καμφωρα*, camphor, *γερμα*, to produce). These substances, identical in composition, are obtained—the former by rectifying crude spirits or oil of turpentine, by distilling it over chloride of calcium to separate the water that may be present—the latter by decomposing camphor, by distilling it with anhydrous phosphoric acid. Its composition is 10 equivalents of carbon and 8 of hydrogen,  $C_{10}H_8$ . Camphor is its protoxide, and is produced by its union with one equivalent of oxygen. This pure oil of turpentine has been much used for purposes of illumination, and lamps called camphene lamps have been contrived to lessen somewhat the dangers attending the employment of so explosive a substance. It requires for its complete combustion a large supply of air, and when furnished with this under proper conditions in other respects, it gives a brilliant flame, more pleasing to the eye, and more perfectly exhibiting the colors of objects as seen by the light of the sun, than that afforded by the ordinary illuminating agents. If burned in an unsuitable lamp, a considerable portion of the carbon escapes unconsumed, filling the air with sooty flakes. Camphene is a remarkably thin fluid, and is rapidly taken up in the wick by capillary attraction. From its property of combining with the oxygen of air, common to the essential oils, it is apt to soon deteriorate and become of a gummy consistence; for this reason it should be used freshly made. See **BURNING FLUID**.

**CAMPHOR**, the name given to different con-



crete volatile products commonly obtained by distillation from the chipped wood, roots, and leaves of certain aromatic plants, and condensed by sublimation into a solid form. As known in commerce, camphor is procured only from Japan and the islands of Formosa, Sumatra, and Borneo; but one species of the trees which produce it is said to abound in some parts of China. In Sumatra and Borneo the product is limited to a narrow range of latitude between the equator and lat.  $8^{\circ}$  N. Two kinds are known in commerce. The consumption of one of these, however, is monopolized by the Chinese, who, by a mere whim, set a value upon it from 70 to 100 times the price of the other variety. The kind they so highly esteem is the Malay article, the product of a gigantic tree which grows wild on the slopes of the Diru mountains, in Sumatra, and in the territories of the sultanate of Brunei, in Borneo—a tree which attains a height of more than 100 feet, and a diameter of 6 or 7 feet. Siebold describes one which measured 50 feet in circumference. It is known in botanical works as the *dryobalanops camphora* or *aromatica*. The camphor is obtained from this tree without employing the process of separation required in procuring the other variety. It is found in concrete masses secreted in longitudinal fissures and crevices in the heart wood, and is extracted by splitting the trunk in pieces and picking out the lumps with a pointed instrument or the nail, when they are small. Some lumps have been found as large as a man's arm, but the product of a large tree does not often reach 20 lbs.; half this amount is a good yield for a middling-sized tree, and in hunting for one many are felled and split up with great labor that furnish no camphor; hence the high price of the article. The Chinese, it is said, pay for it at the rate of \$1,000 to \$1,200 the picul (133 lbs.); or, for a very superior quality, even \$3,000 for 1 cwt., while the Japan article obtained in their ports, and hence known as Chinese camphor, is worth only from \$12 to \$15 the picul. The camphorwood trunks are supposed to be made of the wood of this tree. It answers well for house and ship timbers and articles of furniture, especially such as are intended to contain and preserve clothes. It is very easy to work, splits readily, and is never attacked by the many destructive insects in the East, which will so speedily devour any European woods, and even those of the East, except the teak, the calambuco, and the camphor. The young trees produce, instead of the full-formed camphor, a straw-colored fluid, which is called in the East Indies the oil of camphor, and is used as an external application in rheumatic complaints. This is supposed by Dr. Thompson to be the same substance as the solid product, the composition of which he represents by the formula  $C_{10}H_{16}O$ . But the genuine oil of camphor he describes as the product of the same trees which furnish the camphor of European commerce. This is known in this country and Europe as the camphor of Japan or common

camphor; and of this two varieties are recognized in commerce: one, the Dutch, Japan, or tub camphor; and the other, the Chinese, or Formosa camphor. The latter is principally produced in the island of Formosa, and thence carried in junks to Canton. There it is packed in square chests lined with lead, and distributed to the various eastern ports at which we obtain it. It is a crude article in dirty gray grains, agglutinated together in lumps, and contaminated with many impurities. The tub camphor is obtained in Batavia, whence it is exported in tubs securely covered with matting, and an outside tub, and containing 100 lbs. or more of the article. This is in pinkish colored grains, coarser and purer in general than the Chinese. Both varieties are probably obtained from the same tree, the *laurus camphora* of Linnaeus, or *camphora officinarum* of Nees von Esenbeck—an evergreen of considerable size, resembling the linden tree, and bearing a red berry like that of the cinnamon. All parts of the plant possess the odor of camphor, and produce this article when cut into small pieces and distilled. The process is conducted in large kettles of iron, which are furnished with covers in the form of a dome, in which stalks of rice or grain are placed for receiving the camphor sublimations. But little water is used, and only a moderate heat applied to volatilize this and the camphor together. The latter condenses upon the straw.—All the camphor of commerce is a crude article, which requires purification before it is fit for use. The art of refining it was long monopolized in Europe by the Venetians, and afterward by the Dutch; and it is not long that we have in this country been independent of the latter for our supplies of the pure material. The crude article is introduced together with about 1-50th the quantity of quicklime into vessels of cast iron, which serve as retorts, and over which are placed covers of sheet iron connected with the lower vessels by a small aperture. A number of these stills are placed in a large sand bath, and, after the melting of the camphor within them, kept at a uniform temperature, that the process may go on quietly. The quicklime serves to retain the moisture, which would otherwise interfere with the condensation of the pure camphor. This takes place under the shelf upon which the cone stands, the vapor when in excess passing into the loosely affixed cones of sheet iron, care being taken to keep the hole open. The deposit of camphor is in the form of a circular cake an inch or two thick, with a hole through the centre.—The composition of camphor is represented by the formula  $C_{10}H_{16}O$ . Its specific gravity is 0.987; its melting point is  $288^{\circ}$  F.; and it boils at  $400^{\circ}$ . It is a semi-transparent white substance, crystallizing in hexagonal plates, and with a crystalline fracture; soft, friable, and tough, so that it is difficult to reduce it to powder. When moistened with a few drops of alcohol, it is easily pulverized. Its taste is somewhat bitter and pun-

gent, attended with a slight feeling of coldness; its odor is strong and fragrant, highly penetrating, and exceedingly noxious to troublesome insects. Exposed to the air, it soon disappears in vapor; in close vessels it sublimes and crystallizes upon the parts most exposed to the light. It is readily inflamed, and burns with much smoke and light. A singular effect is noticed on dropping small pieces of clean camphor upon the surface of pure water. The particles rotate and move rapidly about, sometimes for several hours. Any greasy matter touching the water will at once put a stop to the motions. Mr. Tomlinson states that he has found the same phenomenon in the raspings of cork steeped in sulphuric ether, in sublimated benzoic acid, potassium, &c. Camphor is readily dissolved in alcohol, this taking up about its own weight of it. One hundred parts, indeed, of sp. gr. 0.806, dissolve 120 of camphor, forming the camphorated spirit of the pharmacopoeias. Water, added to the solution, precipitates the camphor in fine powder. It is soluble in water only to the extent of about 1 part in 1,000. Chloroform is a powerful solvent of it.—In medicine camphor is made use of internally and externally. In large doses it acts as a poison, producing convulsions, stupor, and death. A case is reported of a young child being fatally poisoned by only 10 grains. Its action is principally upon the brain and nervous system. Through the brain it is supposed to act upon the circulation, producing in moderate doses mental exhilaration, and in larger doses giddiness and a disposition to sleep. Properly administered, it is a sedative, quieting nervous excitement. It particularly promotes the healthy action of the skin, when this is dry and hot in typhoid diseases. Externally applied, it proves highly beneficial in cases of headache and other severe pains from its anodyne properties. Dissolved in olive oil, or as recently proposed in chloroform, it forms an excellent liniment.

**CAMPBORIC ACID.** When camphor is decomposed by the action of strong nitric acid and several times distilled, an acid is obtained of the above name, in fine transparent plates or needles, the composition of which is represented by the formula,  $C_{10}H_8O_6 + HO$ .

**CAMPHUYSEN, DIRK RAFELSK,** a Dutch painter, theologian, and poet, born at Gorkum in 1586, died at Dokkum in 1626. He lost his parents at an early age, and was left to the care of an elder brother; who, thinking that he observed in Rafelsk an inclination for painting, placed him as a pupil in the studio of an artist. He soon distinguished himself by his landscapes, which were generally of small size, but animated with huts, cattle, and human figures, and executed with a skill and delicacy to which no former Dutch painter had attained. His paintings are now very rare, for at 18 years of age he abandoned the art to devote himself to theology, which was the reigning passion of the age. He embraced the doctrines of Arminius, and shared in the persecutions under which

Arminianism then suffered. He was expelled from the curacy of Vleuten which he had previously obtained, became a fugitive from village to village, a prey to suffering and privation, and often regretting the canvas and brush which had erewhile opened to him so pleasant a career. He found now in writing short poems his only relief and consolation. These are generally upon religious subjects, and are characterized by a remarkable depth of feeling.

**CAMPIAN, EDMUND,** an English author and theologian, born in London in 1540, died Dec. 1, 1581. He studied at Oxford, and was ordained as deacon in the English church. When Queen Elizabeth visited Oxford in 1566, he was selected to make the oration before her, as formerly while at school he had been chosen to deliver an oration before Queen Mary on her accession. He went from college to Ireland, and while there wrote the history of that country, and connected himself with the Roman Catholic church. His enthusiasm leading him to seek to make proselytes to his new faith, he was seized and imprisoned; but after a short time effected his escape to the Low Countries, and soon after joined the English college of Jesuits at Douay, passed his novitiate as a member of that society, and became distinguished for his piety and learning. At Rome, in 1573, he was admitted a member of the order of Jesuits, after which he resided for a time at Vienna, where he composed a tragedy, which was received with much applause and acted before the emperor; and at Prague, where he taught rhetoric and philosophy for 6 years. Afterward he was sent by Gregory XIII. in company with Father Parsons on a mission to England, where, on his arrival at the beginning of 1581, he challenged the universities and clergy to dispute with him. His efforts were followed by so large a number of conversions as to disquiet the ministry of Elizabeth; and at the instance of Walsingham he was arrested and thrown into the tower upon charge of having excited the people to rebellion, and of holding treasonable correspondence with foreign powers; he was tried, found guilty, condemned to death for high treason, and executed at Tyburn. The insults of the populace attended him to the tower, where torture was fruitlessly applied to extort from him a confession of treason or a recognition of the supremacy of the English church, and after his death a fragment of his body was sent to each of the principal towns for exposure. Beside his history of Ireland, he compiled a "Universal Chronology," and collections of his letters and several essays were published after his death.

**CAMPINE** (Dutch, *Kempen*, or *Kempenland*), an extensive arid and sandy tract, forming a part of the provinces of Antwerp and Limburg, a part of Brabant, and a part of Holland. Great efforts have been made to reclaim it, but with only partial success. About 800,000 acres remain useless.

**CAMPLI**, a town in the province of Abruzzo Ultra, Naples, is the see of a bishop, and con-

tains a cathedral, an abbey, and 3 collegiate churches. Pop. about 6,000

**CAMPO BELLO**, an island at the entrance of Passamaquoddy bay, Maine. It is about 8 miles long, and belongs to New Brunswick. Between Head harbor and the main ship channel is a light-house.

**CAMPO FORMIO**, **CAMPIO FORMIO**, or **CAMPOROMIDIO**, a village near Udine in the province Friuli of the Austrian dependency of Venice, on the canal of Roja. A treaty of peace between France and Austria was concluded here in 1797.

**CAMPO LARGO**, a town of Brazil, in the province of Bahia, on the Rio Grande. A primary school was established here in 1882. Pop. 8,000.

**CAMPOBASSO**, the fortified capital of the Neapolitan province of Molise; pop. 9,000. It is situated in a fertile district on the ascent of a high mountain, 55 miles N. E. of Naples, possesses a collegiate church, 4 parish churches, 2 colleges, a hospital, an almshouse, and several convents.

**CAMPOMANES**, PEDRO RODRIGUEZ, count, minister, and director of the academy of history and mathematics founded by Philip V., born in 1728, died in 1802. By his talents he obtained an appointment in the post office, and gained considerable reputation by his treatise "On the Laws of Amortization," in which he advocated the right of the government to restrain the alienation of land in mortmain, which met with violent opposition from the clergy. He wrote also a treatise on the "Encouragement of Popular Industry" (Madrid, 1774), which was followed by one on the "Education and Encouragement of Artisans." These met the approbation of the king, and led to the throwing open of the American trade, the admission of other ports to the exclusive privileges enjoyed by Cadiz, the institution of a national bank, the admission of raw produce duty free, and other important changes in the Spanish commercial system. He filled several public offices, the most important of which was that of president of the royal council in 1788. In this capacity he took measures to bring the gypsies and other vagrants into compulsory industry; he alleviated the famine in Madrid, and gave great encouragement to agriculture. His efforts for improvement in the administration of various public departments met with success and gained him enemies, whose machinations ultimately compelled him to retire from public life.

**CAMPOS DOS GOITACAZES**, formerly called SAN SALVADOR DOS CAMPOS, a city of Brazil on the Parahiba; pop. about 4,000. It is surrounded by a sugar-producing district, and was constituted a city in 1885.

**CAMPSIE FELLS**, a range of hills in Shirlingshire, Scotland, reaching from the Forth at Stirling to the Clyde at Dumbarton, and having Loch Lomond on the W. Their extreme length is 25 miles, with an average breadth of 7 or 8; and they rise to a height

of 1,500 feet, having on the 2 sides of their summit the sources of the Carron and Endrick rivers. Near the E. extremity of these hills lies the battle-field of Bannockburn.

**CAMPUS**, in Roman antiquity, a common public park, or vacant space near the city for shows, combats, exercises, and similar uses. Ancient Rome possessed 8 *campi*. The term is derived from the ancient Sicilian word for race-course.—**CAMPUS MARTIUS** was the most celebrated of the *campi* of ancient Rome. It lay outside of the walls of Rome, and consisted of the level ground between the Quirinal, Capitoline, and Pincian mounts, and the river Tiber. It received the appellation Martius from its being consecrated to the god Mars. It was originally set apart for military exercises and contests. Here the *comitia centuriata* assembled in mass meeting, and subsequently the *comitia tributa*; here stood the *villa publica* for the use of the Roman magistrates and the foreign ambassadors, who were not permitted to enter the city limits. It gradually became a suburban pleasure-ground for the Roman public, and was laid out with gardens, shady walks, baths, a race-course, and theatres. Julius Cæsar built there marble halls for the *comitia*, Agrippa erected the first public baths and the Pantheon, Augustus Cæsar the Egyptian obelisk and his own mausoleum, and Statilius Taurus the first amphitheatre of stone. Under the later emperors the place became crowded with public buildings, and subsequently with private residences also. Among the former, the most celebrated were Domitian's temple of Minerva Chalcidia, and Antoninus's pillar. Under Aurelian, the Campus Martius was enclosed within the city boundaries. Campo Marzo is the name given to one of the districts of modern Rome on the northern part of the old Campus Martius.—**CAMPUS SOELERATUS**, the polluted field, a place beyond the walls of ancient Rome, where vestal virgins who had been untrue to their oaths of chastity were buried alive.

**CAMSINGMOONS**, a Chinese seaport town, in Canton province, pop. 5,000. It is built on a small island called Keeow, and has a pretty good harbor, which was formerly much resorted to by vessels engaged in the opium trade.

**CAMTOOS**, a river of Cape Colony, S. Africa. It rises in the Nieuwveld mountains, and after a course of about 200 miles enters the Indian ocean.

**CAMUCCINI**, VIOENZO, an Italian painter, born in Rome about 1775, died there Sept. 2, 1844. His most celebrated works were on subjects taken from Roman history. Among them were, the "Infancy of Romulus and Remus," the "Death of Cæsar," and the "Death of Virginia."

**CAMUS**, CHARLES ÉTIENNE LOUIS, a French mathematician and mechanician, born at Cressy, Aug. 25, 1699, died in Paris, Feb. 2, or May 4, 1768; was educated at the college of Navarre, in Paris, afterward pursuing the office of a teacher and examiner in the schools of that city. He accompanied Maupertuis and Clairaut

in their expedition to Lapland to measure a degree of the meridian there. His papers in the memoirs of the academy are generally on mechanical subjects, and are of great value. He also published a "Course of Mathematics," and an "Elementary Treatise on Arithmetic." In 1760 he was nominated perpetual secretary of the academy of architecture, and in 1765 member of the royal society of London.

CAMWOOD, a red dye-wood principally imported from the vicinity of Sierra Leone, obtained from a leguminous tree, called by De Candolle *baphia nitida*. The coloring matter is with difficulty imparted to water, cold or boiling. Alcohol and alkaline solutions readily extract it. It is usually kept in the ground state.

CANA, the name of 2 ruinous modern towns in Palestine, one about 6 miles N. of Nazareth, the other only about 3½ miles N. E. of Nazareth. It is uncertain which of these, if either, is the scene of the first miracle of Jesus, as recorded in the New Testament. Dr. Robinson gives that honor to the first-mentioned Cana, now known as Cana-el-Jailil. Stanley, in his "Sinai and Palestine," thinks the claims of the two about equally divided.

CANAAN, that part of the promised land which lay between the Mediterranean on the W., the Jordan on the E., the desert of Shur on the S., and Syria on the N., inhabited by the descendants of Canaan, the son of Ham. See PALESTINE.

CANADA, the most important province of British America. The attempts to explain the derivation or the meaning of the name have, for the most part, been equally unsuccessful and unsatisfactory. Most modern writers who have attempted a solution of the enigma have adopted the explanation of Father Hennepin, a Recollect missionary, who accompanied La Salle in the voyage of discovery from Fort Frontenac, the site of the present city of Kingston, to the Mississippi. According to the story of this priest, the Spaniards were the original discoverers of Canada; but on landing and finding that the country did not come up to their expectations, they expressed their disappointment by remarking, *Il capo di nada*, which Hennepin translates *Cap de rien*. Had his acquaintance with the Castilian tongue been more familiar, he would have been aware of the fact that 2 of the 4 words are not Spanish but Italian. Several modern writers on the subject have repeated the error of Hennepin, and adopted his explanation of the meaning of the word as the true one. Earlier authorities, with better means of information, had given a more satisfactory explanation of the philological difficulty. To the river St. Lawrence the name Canada was originally applied, and there is respectable authority to prove that this was also the name of the country which it watered. Lescarbot, the oldest historian of Nouvelle France, tells us that the Gaspeians and the Indians who dwelt on the borders of the bay of Chaleur called themselves

*Canadagusa*, which the French rendered *Canadaguis*, giving it a certain correspondence with *Souriquois* and *Iroquois*. Lescarbot, rejecting the theory of Jacques Cartier, the discoverer of the country, that Canada signifies town, and that of Belle Forêt that it is the equivalent of earth, concludes that the true meaning of the word is province or country, and that it is applicable not only to the country but also to the river, which was sometimes called Hochelaga, and sometimes the St. Lawrence; the latter name having been given in consequence of a French navigator entering it on St. Laurent's day. This opinion seems the better founded from the circumstance that the country, on both sides of the St. Lawrence, was called Canada by the Indians, on its first discovery by the French.—In 1855, the limits of Canada were disputed, on the N., the W., and E. The line between the province and New Brunswick has since been settled by commissioners, and confirmed by an act of the imperial parliament. The boundary on the N. and W. is still disputed. On the N. the province is bounded by the uncertain and unestablished line of the Hudson's Bay company's territory. This boundary question is (Aug. 1858) about to be submitted to the judicial committee of the privy council, in England, for decision. The eastern boundary is formed by the gulf of St. Lawrence, and a line drawn from Anse au Sablon, near the extremity of the straits of Belle Isle on the Labrador coast, due N. to lat. 52°. On the S., Canada is bounded by an arbitrary and zig-zag line, which separates it from New Brunswick; by the state of Maine, with a line for the most part equally arbitrary, the only points where any thing like a natural division occurs being a branch of the St. John's river and the ridge which separates the waters of the St. Lawrence from those of the Kennebec; by the states of New Hampshire, Vermont, New York, Pennsylvania, Ohio, Michigan, Wisconsin and Minnesota. Along the whole of the latter part of the southern frontier—except a short distance between Lake Superior and the Mississippi—there are lakes and rivers: Ontario, Erie, Huron, Superior; the Niagara, the Detroit, the St. Clair, the Sault Ste. Marie. All the islands in the rivers Mistouche and Restigouche belong to New Brunswick. The western boundary of the province, commencing at the northern limits of Minnesota, runs N. to the southern boundary of the Hudson's Bay company's territory. This boundary was fixed by an imperial statute known as the Quebec act of 1774; and at that time, the source of the Mississippi not having been discovered, it was not known how far the line of water indicated extended N. It is now contended that Canada extends N. of the source of the Mississippi, and that consequently along the intervening space it has no defined western boundary. In such a case practised surveyors think there is no authority for producing the line either due N. from the source of the Mis-

Mississippi, or in the direction indicated by the slight curves of the upper portion of the river. The question of boundary to the W. as well as to the N. of Canada requires to be adjudicated upon by competent authority.—Though Canada has formed one united province since 1840, the distinction of Upper and Lower Canada, or Canada West and Canada East, is still kept up, for electoral, judicial, and other purposes. The dividing line between Upper and Lower Canada commences at Point au Bandet on Lake St. Francis, and runs between the counties of Glengary and Prescott, in Upper Canada, and Vandreuil, in Lower Canada, to the Ottawa; thence along the Ottawa to the Moose river, and thence due N. to the Height of Land. From Anse au Sablon the province extends N. W. to the upper extremity of Lake Erie (which is about 10° further S. than the starting point), about 1,486 miles. From this point the boundary line takes a N. W. direction to above the head of Lake Superior, a distance of 670 miles; making the total approximate length of the southern frontier 2,166 miles. The distance from the E. extremity of the province to Quebec is about 788 miles; from Quebec to Montreal, 150 m.; from Montreal to the mouth of the Niagara river, 337 m.; thence to Lake Erie, 25 m.; from the E. end of Lake Erie to the mouth of the river St. Clair, 236 m.; thence to Lake Huron, 80 m.; thence to the E. end of Lake Superior, 320 m.; across Lake Superior to the presumed W. boundary of the province, 270 m. The width of the province, for the reasons already stated, cannot be accurately given. Where the gulf of St. Lawrence ends and the river commences, has yet to be determined by commissioners for the international purposes of the reciprocity treaty of 1854, by which American citizens are secured in the right of fishing in the gulf. At some points, this noble river, which ranks among the finest in the world, spreads out to a width of 40 miles; at others it contracts to one mile. It has 3 outlets, the principal of which lies between Cape Breton and Newfoundland; the narrowest is the gut of Canso, which divides Cape Breton from Nova Scotia; the 3d, consisting of the straits of Belle Isle, divides the Labrador coast from Newfoundland. This river is navigable for sea-going vessels as far as Montreal, a distance of nearly 600 miles. Above Montreal several extensive rapids occur. They can be descended by the largest steamers which navigate Lake Ontario; but as no force of steam is sufficient for their ascent, it has been necessary to construct canals, near the sides of the river, to overcome them. These canals, with that intended to overcome the falls of Niagara—the Welland—have been constructed at a cost to the province of \$14,000,000, the whole of them having been directly built as government works. By the aid of these canals, and that constructed at the Sault Ste. Marie, between Lakes Huron and Superior, vessels may descend from the head of the

latter lake into the ocean; and as a matter of fact, several vessels have recently gone from Chicago, on Lake Michigan, to Liverpool.—Lake Ontario—formerly called Skanadario, in the Iroquois language, meaning beautiful lake—has a length of 180 m., a breadth of 60, and a circumference of 500; an average depth of 500 feet, and an elevation of 234 feet above the level of the sea. Lake Erie, or as the Iroquois were accustomed to name it, Tejocharontiong, has a length of 280 m., a breadth of 68, and a circumference of 700; an average depth of 250 feet, and an elevation of 565 feet above the level of the sea. Lake Huron is partially divided by the group of Manitoulin islands; one main body of water lying to the S. and another to the N. The N. portion is again divided into E. and W., of which the former constitutes the Georgian bay, with a length of 120 m., a breadth of 50, and an area of about 6,000 sq. m. The N. channel has an area, exclusive of islands, of 1,700 sq. m., making the whole area of this lake 21,000 sq. m. Its length from S. to N. is 252 m., its width 190, and its average depth 860 feet. Its elevation above the sea is now, according to the measurements of the state engineers of Michigan, 578 feet, 8 feet more than the Canadian estimate makes it. The modern name of this lake is easily traced to its origin. It took the nickname which the French gave to the Yendots or Wyandots, on account of the manner in which they dressed their hair, resembling the *hure*, or wild boar. By these Indians it was called Kagegnondy. Lake Superior, the largest of the chain, has a length of 360 m., a breadth of 140, a circumference of 1,500, an average depth of 1,000 feet, and an elevation of 627 feet above the level of the sea. The Indian name of this lake was Algona. Lakes Ontario and Erie are connected by the Niagara river; Lakes Erie and Huron are connected by the Detroit river or strait, and the river and lake St. Clair, the shallow flats of which offer one of the greatest impediments to navigation by large vessels which are encountered in these waters. Lakes Huron and Superior are connected by the Sault Ste. Marie. At this latter point, the N. W. company had a small canal, on the Canada side, for canoes and boats, half a century ago. The height of land at Portage du Prairie, near the source of the Superior, is 871 feet above the level of that lake. Before reaching Lake Winnipeg, there is a fall from this point of 841 feet, so that Lake Winnipeg is 30 feet below the level of Lake Superior.—Over the interior of Canada lakes of smaller size are profusely scattered. A list of some of these, the elevation of which has been determined by the geological survey, may not be out of place. A chain of lakes stretches across what was formerly known as the Colborne district, comprising the counties of Prince Edward, Peterboro, Northumberland, and Victoria. They empty by means of short streams, through the Otonabee river, Rice lake, and the river Trent, into Lake

Ontario. Balsam lake, in the township of Bexley, falls into Cameron's lake; Cameron's, in Fenelon, into Sturgeon lake; Sturgeon, in Fenelon and Verulam, into Pigeon lake; Pigeon, in Harvey, into Deer bay; Buckhorn lake, in Ennismore, Smith, and Harvey townships, into Deer bay; Ohemung or Mud lake, in Ennismore and Smith, into Buckhorn lake; Deer bay, in Smith, into Salmon Trout or Clear lake; Stony and Salmon Trout lakes, in Dummer and Burleigh, into the Otonabee river and Rice lake; the latter lake, which lies in the townships of Monaghan, Alnwick, Hamilton, and Otonabee, empties through the Trent river into Lake Ontario. The waters of Lake Scugog, which is situated in the township of Cartwright, are also tributary to Lake Ontario, through the Otonabee river, which is navigable from Peterboro to Rice lake and the channels below. The highest of this chain of lakes has an elevation of 588 feet, and the lowest an elevation of 526 above Lake Ontario. Several years ago the Canadian government made some improvements in this chain of waters, with the view of forming them, by the assistance of canals, into a navigable link for connecting the waters of Lake Ontario with those of the Georgian bay. The attempt was, however, abandoned; but even now this route, as a means of connecting these two great bodies of water, has its advocates, in opposition to those who favor the construction of a canal from Toronto to the Georgian bay, as well as to those who contend that the natural route is by the Ottawa and French rivers. The occurrence of other series of lakes, not far distant, serves to show how exceedingly well watered is the part of the country in which they are situated, a remark which would be almost equally true of any other portion of the province. For even in the most rugged parts of Lower Canada, the mountains are frequently cleft by rivers and bear picturesque little lakes upon their slopes or summits, while springs bubble out of their naked heights or scantily covered steep, and silvery waterfalls may be seen through breaks in the foliage. The more level parts of Upper Canada abound in creeks and rivers, even where small lakes are absent. —After the St. Lawrence, the Ottawa, one of its tributaries, is the largest river in Canada. Having its embouchure at the upper extremity of the island of Montreal, it has a N. W. direction for a distance of between 600 and 700 m.; official estimates, which aim at precision, make it 680 m. It drains, in its course, by the aid of tributaries, an area of from 70,000 to 80,000 sq. m. This valley forms the most extensive pine-producing region in the province; the supplies being so extensive as to be practically inexhaustible. Lumberers had penetrated as far up the stream as Lake Temiscaming, in 1846. To the E. its tributaries are separated by a ridge from those of the Saguenay, with which and the St. Maurice it heads in the height of land which divides the waters of the St. Law-

rence from those of Hudson's Bay. Lake de Quinze is supposed to be the common source of these rivers, a supposition which rests mainly on the information and birch bark charts of the Indians. There can be no doubt, however, that the servants of the Hudson's Bay company must be personally in possession of the facts regarding the exact location of the source of the Ottawa. In the first 250 m. from its head waters to Lake Temiscaming, it receives the waters of several tributary streams. Its width is most irregular, and in many of its links the river is lost in lakes through which it runs. In one place, for a length of 40 m., it has an irregular width of from 1 to 10 m.; in another stretch of 50 m., it expands into an average width of 5 or 6 m.; in another link of 30 m., it has a width of from 2 to 10 m.; again, for a distance of 45 m., it has a varying width of from 2 to 12 m. One of its most extensive links, Lake Temiscaming, with a length of 67 m., tapers off from a width of 6 m. to 500 yards; having at another point a width of only 200 yards, and at a third is reduced to the same width by the occurrence of an island. Again, for 17 m., the width is from  $\frac{1}{2}$  to  $\frac{1}{4}$  mile. Along its course, the Ottawa presents many portages, where the waters contract to a width of 40 or 50 yards, and are precipitated over rocks, sometimes forming beautiful cascades. Below Lake Temiscaming, the Rivière du Moine is its largest tributary; following its course, it has a length of 40 m. from the mouth of the Mattawa, and consists of a chain of lakes connected by short narrow streams. The further extremity of that forming the summit level of the chain, indifferently called Trout or Turtle lake, approaches within 8 m. of Lake Nipissing. The Ottawa has been rendered navigable in stretches, by the construction of canals to overcome falls or rapids, a considerable distance above Ottawa city (late Bytown). An opinion prevails in Canada that the Ottawa river and the Georgian bay will one day be united, by canalising the narrow strip of land that divides a principal tributary of the Ottawa from Lake Nipissing, and improving the navigation of the Ottawa and French rivers. With this view, the Canadian government has undertaken a survey of the whole line of water. The Gati-neau, which empties a few miles below Ottawa city, is one of the largest tributaries of the Ottawa. If the Ottawa is sometimes swelled up in the lakes which it traverses, the French river consists of little else than a continuous chain of long, narrow lakes, rising by gentle elevations one above another, having for connecting links short rapids or falls. Through this lake-encumbered river the waters of Lake Nipissing glide into the Georgian bay, there being a fall of 69 feet in the distance of 59 m. Lake Nipissing, which has fallen 8 feet 9 inches below its ancient level, has an elevation of 647 feet above the level of the sea at Three Rivers, the highest point on the St. Lawrence at which the tide is perceptible. The Upper Trout lake,

a leading tributary of the Ottawa, has an elevation of 25 feet above Lake Nipissing, within 8 m. of which its nearest border is situated. Thus, in order to obtain a navigable passage the whole distance from the outlet of the Ottawa to the Georgian bay through Lake Nipissing and the French river, an elevation of 672 feet would have to be overcome in the ascent to the Upper Trout lake, and thence to Georgian bay a fall of 94 feet; making a total lockage of 766 feet.—The French river has 4 known distinct outlets in the N. E. part of Georgian bay, the widest apart of which are separated by a distance of 14 or 15 m., and the Indians allege that there is another to the W. Along its whole length, except about 10 m. of the upper portion near Lake Nipissing, it has 2 channels, separated at some points by an interval of 3 or 4 m. The occurrence of islands in the lake-links of this river often contracts the channel to a few yards' width. From its outlets, the general direction of the river is N.E., but its course is subject to considerable irregularities, being sometimes in the N. channel nearly due W., and at others nearly due S. Both channels are interrupted by rapids and falls, rendering necessary in the ascent of the S. channel 7 portages; the ascent of the N. channel is less difficult, and in the descent only 2 portages are necessary in either channel.—The 3d great navigable river of Canada is the Saguenay, at the entrance of which is the ancient port of Tadousac, which had become noted in Europe before the foundation of Quebec. As it lies further down the St. Lawrence than Quebec, it was, for some time after the discovery of the country, often visited by French vessels, which did not ascend as far as Quebec. The river has an average width of about  $\frac{1}{2}$  of a mile, with high precipitous banks presenting, with the tall figures and dim shadows of the succession of mountains which extend as far as the range of vision sweeps, a picture of grand, desolate, and rugged beauty. It is navigable for ships of the line as far as Chicoutimi, a distance of 75 m. At this point, the ebb and flow of the tide are nearly as great as at the confluence of the river with the St. Lawrence. The St. Maurice, which falls into the St. Lawrence on the N., at Three Rivers, has been surveyed a distance of 880 m. It is navigable for a few miles at its mouth; after which the navigation is interrupted as far as Grand Piles, a distance of 44 m. from its embouchure; then there is another navigable stretch of 75 m., on which a steamer runs. Lumbering operations have been carried up this river a distance of 160 m.; and for this purpose its tributaries have been explored and surveyed through an area of over 14,000 sq. m. The valley drained by this river is as large as the whole of Scotland; and it is estimated to contain as much arable land as that country. Extensive slides and booms have been constructed by the government for the convenience of the lumber trade. The Betisiamite or Bersimis river, situated below

the Saguenay, is another large tributary of the St. Lawrence, flowing from the N.; though a navigable stream, no larger craft than canoes are found upon its waters. The Rideau river, which falls into Lake Ontario at Kingston, running in an inverse direction to the St. Lawrence, from which, near its mouth, it is divided by a narrow strip of land, was made navigable for military purposes, as far as Ottawa city, by the supplementary aid of the Rideau canal. The work was undertaken by the British government, and cost about \$7,500,000. This canal has long since fallen into almost absolute disuse; and has recently been conveyed to the Canadian government, who would not have consented to assume the burden of its maintenance, if they had not received as an equivalent a large quantity of valuable ordinance lands.—The peninsula of Upper Canada, though well watered by a profusion of small streams, is almost entirely destitute of navigable rivers. The Thames, which falls into Lake St. Clair, is navigable for propellers as far as Chatham, a distance of 80 m. The Grand river, which falls into Lake Erie, has by artificial aids been rendered navigable for small craft as far as Brantford. Lake Simcoe, marked on old French maps Lac Toronto, lies nearly due N. of Toronto, and may be said to form the E. limit of the peninsula. It has a length of 40 and a breadth of 30 m., with an average depth of 125 feet. It is divided by a strait from Lake Osochiching on the N., and is connected by means of the river Severn with Georgian bay. The principal rivers which fall into Lake Huron on the N. are the Theessalon, the Mississaga, the Serpent, the Spanish, and the White Fish rivers. Their mouths range from 15 to 30 m. apart. Of the 5, the Spanish river is the largest; it is the only one that is navigable, and even it is not capable of floating craft drawing more than 5 feet; by such vessels it is navigable 35 m. The White Fish river consists of little else than a series of lakes. Its upper waters have an elevation of 775.55 feet above the sea. The Muskoka has 2 outlets, if not more; it traverses 7 lakes in its course, and has 8 for its head waters, which have an elevation of 1,405.85 feet above the level of the sea.—The province is traversed, in its entire length, by a mountain chain which divides the country into 2 great basins, the N. and the S. basin, of which the former is the more considerable in the lower part of the country, and the less extensive before the W. frontier is approached. This range, to which the name of the Laurentian mountains has been given, runs along the N. bank of the St. Lawrence river, near its margin, from the Labrador coast to Cape Tourment, near Quebec. From this point, the range recedes N., running 60 m. behind Quebec, and 80 m. behind Montreal. Thence, following the line of the Ottawa for a distance of 150 m. from Montreal, it crosses that river at Lac du Chat; then taking the opposite direction it returns S. to the St. Lawrence, a little below the point at

which Lake Ontario discharges its waters into that river. From this point, it runs in a N. W. direction to the S. E. extremity of Georgian bay; then forming the E. shore of that bay, it passes beyond to lat.  $47^{\circ}$  N.; whence, taking a W. direction, it passes Lake Superior, and runs in a N. W. direction to the Polar sea. This range crosses the St. Lawrence at the point where it returns to it after crossing the Ottawa; and the Thousand Islands, which there stud the former river, may possibly be considered as so many of its fragments. Between this point and Lake Champlain, it comprises the Adirondac mountains. On the S. side of the St. Lawrence, commencing near the E. extremity at Gaspé, is another range of mountains, considerably broken, running parallel with the river, and passing, higher up through the Green mountains of Vermont, into the higher range of the Alleghanies, which divide the waters of the Ohio from those of the Atlantic. On the river Chatte, one of the peaks has an elevation of 3,768 feet, and a spring bubbles out within a short distance of the summit. At some points the mountains rise to an elevation of 2,669 feet, close to the banks of this river. From this point Notre Dame range is distant but 12 m., and from the most elevated peak it presents a wild confusion of mountains cut by ravines, through which the waters of numerous lakes and springs tumble into the St. Lawrence. The Laurentian series of mountains, on the N. side of the St. Lawrence, have at some points an elevation of from 4,000 to 5,000 feet. This elevation is attained between Quebec and Lake St. John; but this is at a point where the rivers, including the Jacques Cartier, are 3,000 feet above the level of the St. Lawrence, and in general the range is much lower. The height of land which divides the confuents of the St. Lawrence from those of Hudson's bay, is far from presenting a continuous mountain range, as was until recently supposed. It consists, for the most part, of a ridge of table land, on which the sources of the waters which run N. and S. interlock and overlap one another, sometimes for considerable distances. At some points the heights have now been ascertained by actual survey. At Portage du Prairie, above Lake Superior, the elevation is 1,498 feet over the level of the sea. The ridge decreases in height eastward. The highest point in the peninsula of Upper Canada, along the line of the Great Western railroad, is about 700 feet above Lake Ontario. A line surveyed on the plateau of Lake Erie shows an elevation of only 200 feet, at the highest point, over Lake Ontario.—Beside the great valleys which lie to the N. and the S. of the Laurentian series of mountains, there are several transverse valleys, formed by rivers flowing into the St. Lawrence on the N. side, such as the Saguenay, the St. Maurice, and the Ottawa. The Saguenay, for some 60 m., is a walled river, and presents no valley till the points of Grand bay and Chicoutimi are reached; but with the St. Maurice it is differ-

ent.—The rock-formations present in Canada comprise representatives of the azoic and lower palæozoic divisions, with the drift deposit, and some erupted masses of granitic and trappean rocks.—*Azoic Formations.* These, in an ascending order, comprise the Laurentian and the Huronian rocks of Canadian geologists. The Laurentian series of crystalline rocks constitutes the oldest formation met with in Canada. It consists chiefly of micaceous and hornblendic gneiss, with subordinate strata of compact feldspar, mica, and talc schist, quartzite, crystalline limestone, and dolomite. These are considered to be ancient sedimentary beds, rendered crystalline by metamorphic action. They contain various accidental minerals, as garnet, tourmaline, augite, &c., and valuable iron ores. Here and there, intrusive masses of granite occur among the series. The general direction of this formation has been already stated; and it only remains to add that, at a point W. of French river, it is overlaid by the Huronian formation. It appears again on the E. and N. shore of Lake Superior, and stretches far up to the N. and W. It thus occupies by far the larger portion of the province. This formation, having a general N. W. and S. E. direction as already stated, divides the province into two great basins—the S. and the N. basin. These Laurentian rocks are chiefly of importance in an economic point of view, from the large and valuable beds of iron ore (principally the magnetic oxide) which they contain, more especially in the townships of Belmont, Madoc, and Hull. At McNab on the Ottawa, also, and other places, red iron ore is met with; and among the other economic substances of this formation, we may cite the marbles of Arnprior and Grenville, the large mica plates of the latter locality, and the sulphate of baryta of Lansdowne, Bathurst, and McNab. As a general rule, the districts over which the Laurentian rocks prevail are ill adapted for agricultural occupation. Fertile soils can only be expected to occur in association with the beds of crystalline limestone or decomposing feldspar, belonging to the series. Overlying the Laurentian formation along the N. shore of Lake Huron and many parts of Lake Superior, various slates, sandstones, and conglomerates occur, with a few bands of limestone, and thick intercalated beds of trap. To these rocks, collectively, Sir William E. Logan has applied the name of the Huronian series. Their entire thickness amounts in places to about 12,000 feet. Numerous trap dikes, beside the intercalated masses of trap already mentioned, traverse these rocks at many localities. The whole formation is eminently copper-bearing. Native copper is found in it, about Lake Superior; but the chief metalliferous deposits occur on Lake Huron (Bruce mines, Wallace mines, &c.), and furnish copper pyrites, purple copper pyrites, and sulphide of copper, in great abundance.—*Palæozoic Formations. Great Southern Basin.* It has been stated above that the principal water-shed or high land of the Laurentian district,



running in a general north-westerly direction, divides the province into 2 great basins, the S. and the N. basin. Sir William E. Logan has shown that the palæozoic rocks of the S. basin admit of being divided naturally into 2 subordinate basins, by an anticlinal axis which runs in a north-easterly direction from Lake Champlain, and strikes the St. Lawrence a little below Quebec. The strata W. of this line offer a remarkable contrast to those on the other or E. side. They are nearly horizontal, and follow one another conformably from the lower to the upper silurian, and from these latter to the Devonian series. In the E. basin, on the contrary, the rocks are much disturbed, and are rendered crystalline in many places by metamorphic agency. Beside which, there is a want of conformability between the lower and the upper silurians; and also, as occurring in Gaspé, between the Devonian and the carboniferous strata.—*The Western Basin.* The rock groups of this basin comprise the lower and upper silurians, and, in the western peninsula, a portion, also, of the Devonian formation. In an ascending order we have, first the Potsdam sandstone, the lowest of the fossiliferous rocks; then the calciferous sand rock; the Chazy limestone; the bird's-eye, Black river, and Trenton limestones; the bituminous slaty strata called the Utica schist; and the series of shales and sandstones, with subordinate limestone beds, termed, collectively, the Hudson river group. These form the lower silurians, developed chiefly along the St. Lawrence, from a short distance below Quebec, around the river Ottawa, and in the country between Lake Ontario and Georgian bay. The Trenton limestone covers the widest area, and is of the most importance. The upper silurians begin with the Medina sandstone, which sweeps from the S. shore of Lake Ontario, in a thin band, by Queenstown, Hamilton, &c., to the W. of Owen sound. This is followed, still further to the W., by the Clinton and Niagara group of shales and limestones. Next comes the Onondaga group, still to the W., with its valuable gypsum deposits. Then follows the conchiferous limestone, occupying a large portion of the N. shore of Lake Erie, and an equally large portion of the shores of Lake Huron. This closes the silurian series. Of the succeeding Devonian rocks one division, that of the Hamilton shales, a series of bituminous slaty rocks, is alone developed to any extent in western Canada. It covers a broad area in the counties of Lambton, Middlesex, Essex, and Kent. Here and there it has been found to underlie small patches of the Chemung and Portage group, so largely developed in the adjacent peninsula of Michigan. Most of these rocks yield good building materials. Lithographic stone also occurs in the Chazy limestone, especially around Marmora; and the same division has likewise furnished some good marble. The Trenton limestone has also yielded marble of excellent quality. From the Niagara group

the well-known Thorold cement is obtained, and large quantities of gypsum are exported into the States, from Cayuga, Oneida, and other townships situated upon the Onondaga group of rocks. Finally, in the Devonian rocks of Enniskillen, &c., many petroleum springs occur, and also some valuable deposits of asphaltum.—*The Eastern Basin.* In the area E. of the anticlinal axis already alluded to, the rock divisions comprise the Trenton limestone, the Hudson river group, and a series of quartzose sandstones and red and green shales, known by the name of the Sillery group. This group has not been recognized in the W. portion of the province. In the E. it forms almost the entire line of the S. shore of the St. Lawrence. It is succeeded unconformably in Gaspé by upper silurian limestones, followed by an enormous thickness of sandstones and shales belonging to the Devonian formation. On these Devonian rocks, also in unconformable stratification, rest about 8,000 feet of coarse sandstones, representing the lower portion of the carboniferous group. More inland, as in the eastern townships, many of the beds belonging to the Hudson river and Sillery groups have undergone remarkable alterations. They are converted into micaceous, chloritic, and talcose schists, and also into serpentines and various feldspathic and hornblendic rocks. The more important economic minerals of this metamorphic region comprise chiefly the iron ores of Bolton and Brome; the 50 feet bed of magnetic and titaniferous iron ore of Beauce and Vaudreuil; the chromic iron ore of Bolton and Ham; the argentiferous copper pyrites of Upton; the argentiferous galena of the Chaudière valley; and native gold, diffused over a wide area. Magnesite, fine marble, slate, &c., occur also in the district. In this region, likewise, and extending into the western basin, are many erupted masses of igneous rock, forming the picturesque mountains of Yamaska, Shefford, Brome, Belœil, Montreal, &c.—*The Drift and Alluvial Formations.* Thick deposits of clay and sand, with boulders or transported masses of gneissoid and other rocks, cover the formations of both the eastern and western basins in most parts of the province. These deposits belong to the transitional period between the close of the tertiary and the commencement of the present epoch. They contain some valuable economic substances, chiefly beds of bog iron ore, as in the Three Rivers district, and in the county of Norfolk, on Lake Erie; likewise, shell marls and peat. The clays of London, Toronto, Cobourg, Kingston, and other places yield, also, good white bricks.—*The Northern Basin.* This basin, as already stated, lies to the N. of the high land or water-shed which traverses the Laurentian district in a general N. W. direction. Its geology is still very obscure. The formations known to occur within its area comprise the Laurentian series, the Huronian rocks, and the upper silurians. The lower silurian system has not yet been recognized;

hence the inference of Sir William E. Logan, that the high range of Laurentian country, from the coast of Labrador to the Arctic ocean, forms the N. limits of the lower silurian sea.—The total amount of public lands in Upper and Lower Canada, now at the disposal of the government, is about 175,000,000 acres, of which a little over 6,000,000 acres have been surveyed. Much of the remainder has been but imperfectly explored. The quantity of lands in the hands of private individuals is over 84,000,000 acres. The crown land department estimates the extent of the area drained by the St. Lawrence river and its tributaries at 210,441,525 acres. The territorial extent of Lower Canada is much greater than that of Upper Canada, the former comprising 184,412,800 acres, and the latter, within the water-shed of the St. Lawrence and the lakes, 77,606,400 acres. These figures, though official, are necessarily only an approximation to the truth; for precise accuracy must be impossible so long as the N. boundary of the province is undetermined. The undisposed of surveyed lands of the crown in Lower Canada lie chiefly in the valley of the Saguenay, in the rear of the seigniories, on the Ottawa river and its tributaries, and on the S. side of the St. Lawrence, between the settled seigniories and the line which divides the province from New Brunswick and the state of Maine. A small portion also remains in that part of the country which is known as the Eastern Townships. The unsold surveyed lands of Upper Canada lie principally in what is sometimes called central Canada, in rear of the frontier settlements on Lake Ontario, and between the Ottawa river and the Georgian bay, and N. of Lakes Huron and Superior. The western peninsula, which for a considerable time absorbed almost all the immigration the country received, is now held almost entirely by private individuals. With an excellent soil, well suited to the production of every kind of grain, and growing wheat in great abundance, it presents scarcely any waste, and a very large proportion of it is already under cultivation. It has been justly regarded as the garden of Canada; the good influence of the surrounding bodies of water harmonizing with the natural richness of the soil. The line of settlements extends from the river St. Anne, on the S. side of the St. Lawrence, to the W. extremity of the E. shore of Lake Huron proper. The valley of the St. Lawrence, being most accessible, was naturally first settled; and until the conquest of the country by the English, nearly a century ago, the settlements of the French were principally confined to the banks of that river; the banks of the Detroit formed almost the only exception. On the St. Lawrence, the subdivision of the land has been carried to as great an extent as in most countries of Europe—to a far greater extent than in England; and the result is, that for hundreds of miles, the banks of the river present the appearance of a continuous

village, the bright-tinned spires of the Catholic churches rising above the white houses and glistening in the sun, at regular and not distant intervals. Since the conquest, partly from antipathy of race which shrunk from a contact with the original French colonists, and partly because the lands along Lake Ontario and in the upper peninsula invited settlement by their superior fertility and a less rigorous climate, the new bands of English colonists who followed in the footsteps of Wolfe wended their way westward. These causes have ever since continued to influence the immigrant population; and the result is, that while the western peninsula is all taken up, the fine valley of the St. Maurice, with its 8,500,000 fertile acres, with the exception of the devastations of the lumberer, was, until the last few years, left to its original barbarism. Below Kingston, very little autumn wheat is sown, the climate being unsuited to its production, and spring wheat almost exclusively prevails. Attempts, not entirely unsuccessful, have been made to grow autumn wheat in the valley of the Saguenay, at Chicoutimi; but they prove nothing. On the Escommain river, below the Saguenay, good crops of all kinds of grain have been raised. Similar experiments are now being made with success, in the county of Chicoutimi, nearly as far N. as Lake St. John. What proportion of the 175,000,000 acres of crown lands yet undisposed of is capable of cultivation, and comes under the term arable, must necessarily be unknown till a much larger portion of it has been surveyed. The N. basin is attracting settlement on the upper Saguenay. The peninsula of Gaspé, which is as large as that of Denmark, and which lies advantageously with respect to Europe, has been much neglected. The S. portions of it are sheltered by the mountains of Notre Dame. S. of this range is an irregular plateau of table land, having an elevation of from 1,000 to 1,500 feet, varying in width from 10 to 80 m. On the N. side of the mountains, the valley on the bank of the St. Lawrence is settled as far as the river St. Anne. At this river the range divides; a branch running to the S. for some distance, and then advancing to the shore at Mont Louis, continues E., its altitude declining till it terminates in Cape Gaspé. The valleys and the slopes of the hills generally present a rich soil, free from stones; but the inequalities of surface form an obstacle, not insurmountable, perhaps, to settlement. The steepness of the hill sides, even where the mountains do not extend, is often such as to put cultivation out of the question. That portion of the W. border of the peninsula which fronts on the county of Bonaventure, presents a surface and soil as favorable for settlement as any other portion of Lower Canada, where public lands are available. Good crops of excellent grain can here be raised at an elevation of 1,000 feet above the level of the sea; and it has been stated on official authority that, with equal cultivation, the produce is 20 per cent.

greater here than in other parts of Lower Canada. Wheat raised in this peninsula was classed high enough, at the Paris exposition in 1855, to obtain honorable mention. The climate, except on the coast, which is exposed to the cold winds and fogs of the gulf, is every way as favorable as at Quebec, and the winter milder. Above the Restigouché, there are about 110 m. of coast unsurveyed. Squatters have spread themselves over  $\frac{1}{4}$  of the distance. A considerable proportion of the inhabitants of this peninsula are engaged in fishing; they confine themselves principally to the shore, the deep sea and mackerel fisheries being abandoned to American enterprise.—Of the interior of the county of Tadoussac, which extends on the N. bank of the St. Lawrence, from the E. boundary of the province to the Saguenay river, a distance, following the coast line, of about 600 m., but little is known. It covers an area about twice as large as Scotland. Its features are mountainous and rugged; it is watered by large rivers, and in some places bears an abundance of pine timber; the latter fact affording evidence that it is capable of producing grain. Over the greater part of this extensive region, the Esquimaux is supreme. Hunters tell of a hard-wood region bordering on the Saguenay country.—The valley of the river Saguenay covers an area of 27,000 sq. m., and is estimated to contain over 3,500,000 acres of arable land, lying chiefly in the N. interior basin which has Lake St. John for its centre; it is known as the upper Saguenay. It is protected from the fogs and cold winds of the gulf by the mountains of St. Marguerite and other high lands. To the S. the range of Laurentian mountains, rising in places to an unusual height, renders the country, to the width of from 50 to 80 m., almost valueless, and until the valleys of the rivers were followed, it was almost utterly inaccessible. A practicable line of road has, however, at length been found. Protected by the high mountain ranges, the valleys and table lands enjoy a milder climate than the settlements on the St. Lawrence, 2° further S. On the shores of Lake St. John, the climate is said to be less severe than at Quebec. It is not yet ascertained how far N. in the interior valleys successful cultivation is possible. Almost every description of agricultural produce has been grown in the neighborhood of Lake St. John. The Saguenay, to which attention has of late years been directed by colonization societies in Lower Canada, already produces grain beyond the wants of its population.—Colonization societies form a curious feature in the social and political economy of Lower Canada. They are, in fact, joint stock farming associations, with a share capital, and all the machinery of a directory and general management. There is one at Quebec, another at L'Islet, and a 3d in Kamouraska. That of Quebec has chosen for the scene of its operations the rear part of the county of Montmagny, on the S. side of the St. Lawrence.

These associations sprang out of the gregarious character of the French Canadian population. Accustomed to a regularly organized society, they have no taste for isolation, and when they move into the wilderness, which they do with the greatest reluctance, and not until the paternal estate has been subjected to the minutest subdivision which will afford a chance of humble subsistence, they wish to carry the entire frame-work of the old society with them, the regular parish, the church, and the priest being essential constituents.—Between the Saguenay and Three Rivers very little land has been surveyed, in the rear of the settled seignories, on the bank of the St. Lawrence. The townships near Quebec contain, on the slopes of the Laurentian range, some good hard-wood land. The deep streams that intersect this range form no wide valleys, and there is little alluvial soil on their banks. Between the St. Maurice and Montreal, the hard-wood land on the Laurentian slope becomes lighter; in the valleys, at their base, sand and clay prevail, and there are broader alluvial flats along the streams.—From Cape Chatte to Mitis, on the S. side of the St. Lawrence, no considerable quantity of vacant lands occurs. The reverse is true of the country from the Chaudière and the Kennebec road to Mitis. Within this stretch there is a tract of country, between the rear of the seignories on the St. Lawrence, and the southern boundary of the province, 200 m. long, and from 12 to 40 m. wide. It contains over 1,000,000 acres of surveyed lands unsold; and a larger quantity still has yet to be surveyed. Being cut longitudinally in the centre by the mountains of Notre Dame, which here rise in scattered and detached groups, considerable portions of it are rugged and poor, the mountain summits sometimes rising over 4,000 feet above the level of the sea. The best soil, which is covered with hard-wood, occurs in the depressions which intervene between the different elevations of the series. The best lands occur along the boundary line of the United States. To these interior lands 6 leading roads have been made by the government.—In the next section of country westward, which lies between the Chaudière and the Richelieu rivers, in the rear of the seignories on the St. Lawrence, and which is known as the Eastern Townships, the mountains of Notre Dame again present themselves in the same detached and fragmentary shape, being cut transversely by the valleys formed by the Chaudière and the St. Francis rivers. Here the valley of the St. Lawrence, on the S. bank, is about 20 m. wide; and the hilly country, which presents here and there summits 2,000 feet high, has a width of about 30 m. To the S. lies a valley, parallel to the great valley of the St. Lawrence, about 80 m. in width, drained by the Chaudière and the St. Francis. It has an advantage over the valley of the St. Lawrence in point of position, lying further S., and favored by a protecting range of broken

mountains to the N. This section is about the only point in Lower Canada which an English-speaking population has occupied. There remain less than 1,000,000 acres of surveyed lands undisposed of, and a still less quantity to be surveyed. A considerable number of squatters have gone upon the surveyed portion, and of what is not sold or occupied, there is a good deal of waste. The general character of the country is gently undulating, except on the banks of the rivers, where there are extensive flats of inferior soil. Some idea of the picturesque character of this section of country may be obtained from the fact, that from one point, the summit of Oxford mountain, which has an elevation of over 4,000 feet above the St. Lawrence, no less than 18 small lakes can be seen.—The valley of the St. Maurice is officially estimated to contain 3,500,000 acres of arable land. Situated on the N. side of the St. Lawrence, midway between the cities of Quebec and Montreal, its position is in many respects favorable, commanding ready communication with Upper Canada, the United States, and Europe. Up to a very recent period, the value of this fine territory was almost entirely unknown, both to the people and the government. The immediate flats of the river in some places contain poor soil; but at a distance of 2 or 3 miles, high ridges of heavily timbered land present themselves. In other places the banks of the river are of the most fertile soil. In the track of the lumberman, the farmer has, as usual, followed; and good wheat and other descriptions of grain have been grown. Above some of the branches of the river rise fine stretches of table land. In one place, a settlement of 14 miles suddenly sprung up along a road opened by the government. Indeed, until recently, one of the great obstacles to the progress of settlement in Lower Canada has been the want of roads. In one part of the district in question, the woods have been devastated, for a large distance, by fire. Settlements have within the last few years been formed at several points. Large rivers, lakes, alternations of alluvial and table land, the absence of elevations rising to the importance of mountains, the Laurentian range excepted, heavy timber of which pine forms a large proportion, are among the principal features of this extensive valley. The richest soil is to be found on the alluvial banks of the lakes and rivers, and in the other lower grounds, which occasionally merge into swamp. There are some famous mineral springs. In the pine forests, 1,000,000 square feet of red and white pine are sometimes prepared during a winter. But this business has only just commenced, the territory having been open to commerce barely 6 years.—The great valley of the Ottawa contains a settled population of not over 120,000 souls. The settlements have not extended over 80 m. above the city of Ottawa; and they exist in the proportion of two to one on the S.W. side of the river. On the N. E. side a strip from 4 to 6 m. wide of low land, of good quality, extends 120 m.

above the city of Ottawa. This strip, as well as the islands of Calumet and Allumette, of which the soil is similar in quality, has for the most part passed into the hands of private individuals. Behind and above this strip, the country becomes hilly and even occasionally mountainous. The exploration into the interior has here been very imperfect, the country being altogether unknown at a distance of 70 m., except on the rivers Du Lièvre and Gatineau. It is described as being in many places steep, rocky, and stony, 75 per cent. of it being unfit for cultivation; and whatever there is of good occurs in such detached portions as only to be available for agricultural purposes in connection with the surrounding lumber trade. Up the Gatineau river 140 m., pine becomes scarce and then disappears entirely. Some parts of the upper valley of this river are covered with poplar and beech, alternating with pine; others present nothing but sterile rocks and precipitous hills. The lower valley of the Gatineau, as well as that of the river Du Lièvre, contains excellent agricultural lands. The settlements on the Gatineau will soon extend a distance of 100 m.—The extensive district lying between the Ottawa river on its S. W. side, and the Georgian bay, is the one to which settlement is now chiefly directed. Extending 200 m. above the city of Ottawa, and having a base N. of the frontier settlements of Lake Ontario of equal extent, its width at the upper end is about 100 m. It contains large tracts of fertile land, is not cut by mountains, and produces a great variety of timber. This district has been distinguished into white pine and red pine and hard wood countries, owing to the prevalence, in different places, of those different descriptions of timber. The white pine country lies to the E., and the red pine immediately W. of it. The soil of the red pine country is sandy and poor, gravelly or stony, with a rugged, uneven, and rocky surface. The other division contains a mixture of good and tolerable land, generally fit for agricultural purposes. Excepting where tracts of hard wood land occur at intervals, the red pine country is pronounced, on official authority, unfit for settlement. W. of these two divisions lies the hard wood country. Among the timber which gives its name to this section are interspersed belts of red pine, the white having totally disappeared. This strip extends W. at one point 75 m., and has a length of 180 m. from S. E. to N. W. Between this strip and the Georgian bay lies a belt of from 20 to 80 m. in breadth, of barren soil, frequently terminating in naked rock near the shores of the bay. To the S., near the ridge dividing the waters of the Ottawa from those which flow directly into the St. Lawrence, belts of poor, rugged, stony land, about 20 m. in width and unfit for settlement, occur.—Between Lake Nipissing and Lake Opeongo, about  $\frac{1}{3}$  of the land is fit for cultivation; the timber being for the most part hard wood. This whole region of country between the Ottawa river and the Georgian

bay is well watered, and the rivers afford much hydraulic power. Altogether, it is the best district of country E. of Lake Huron for agricultural purposes. A railroad to connect the Ottawa with the Georgian bay has been projected; and the government has granted a wide strip of land, on each side, toward its construction. This grant was made in 1856, but the railroad has not yet been commenced. It is proposed to extend it to Quebec. On the N. and W. of Lake Nipissing, the land is good; but on the French river it is rocky and barren. The timber trade of the Ottawa is immense. During the 9 years from 1848 to 1856 inclusive, 94,500,000 sq. feet of white pine was sent from the upper Ottawa to Quebec; 25,590,000 cubic feet of red pine, which predominates over the white, and 2,286,690 feet of other timber. The whole amount cut during that period would fall little short of 300,000,000 feet. It has been calculated that there is available in the valley of the Ottawa about 48,000,000 tons of such timber as is now taken to market, and about 180,000,000 tons of smaller size. In other words, the existing growth, without making any allowance for additions, would support a trade equal to that now carried on for a century to come.—The westernmost section of the province, comprised within the valley of the St. Lawrence and the lakes, lies on the N. of Lakes Huron and Superior; having a length of 410 m. from the mouth of the French river on the E., to Pigeon river on the W. Its uncertain breadth is estimated at 160 m., and its area is about 84,000 sq. m. Following the coast line, the length is 600 m., of which 150 m. are on Lake Huron and the river St. Marie, and 450 on Lake Superior. The N. shore of Lake Superior presents a bold, rugged coast, of which the cliffs and eminences vary from 800 to 1,300 feet in height. It presents great diversity of scenery in these varying heights, which rise close upon the margin of the lake, deep indentations, sheltered coves, and clusters of islands. The harborage presented is ample for every purpose. The timber, consisting chiefly of spruce, balsam fir, white birch, poplar, and cedar, is generally of little commercial value. Some of the higher points are bare of trees, and the land available for agricultural purposes is chiefly confined to the flats and valleys at the mouths of the streams. Between the Batchewana and Goulais bays and the Missisaga, the country is fine, producing hard wood on the ridges, and presenting in the broad, alternating flats a deep alluvial soil. Among the hard wood, there is a sufficiency of white pine for building purposes; the flats are principally covered with cedar, tamarack, ash, elm, soft maple, and birch, except where small prairies, bearing a luxuriant growth of grass, intervene. It is probable that this section of country will, at no distant day, be settled. The whole country, where it has been surveyed and explored, from Lake Superior to Lake Nipissing, presents, among the rugged and broken portions that in-

tervene, many extensive valleys of excellent land, well adapted for settlement. And even in the more rugged and less prolific portions groves of fine pine timber are frequently met, and indications of mineral wealth present themselves. The government surveyor, by whom this extensive section of country has been traversed, recommends that settlements should commence at the west and be carried down eastward. The finest land in the whole distance occurs from the rear of the village of St. Marie, bounded on the W. by the Batchewana bay, and on the E. by the Missisaga river. It is easy of access from Lakes Superior and Huron and the river St. Marie. The valuable copper mines on the N. shore of Lake Superior have been almost entirely neglected, and much has yet to be done in the way of exploration before the extent of the mineral wealth can be known. The Indians appear to possess some secrets regarding the mines; but they persistently refuse to disclose them, having a vague fear of the consequences of their doing so, as if they were conscious of the wrongs which the Spaniards inflicted on their race in South and Central America and the West India islands, in compelling them to perform the labor of slaves in the gold mines, and dreaded a similar fate. N. of Lake Huron the hills occasionally attain an elevation of from 400 to 700 feet above the lake. The surfaces of these hills are generally rounded, but occasionally they exhibit rugged escarpments with surfaces of naked rock. The slopes are often gentle, and the valleys wide, the soil of the latter being either a fine sandy loam or a deep deposit of decomposed vegetable matter, with the subsoil of blue clay. The valleys are sometimes crossed by ridges, varying in height from 40 to 150 feet. The valley of the Spanish river presents important facilities for settlement; all the land being of good quality or bearing a rich crop of excellent pine, for which a ready market might be found at Chicago and other places. Mill sites for the manufacture of timber exist in abundance.—Canada is rich in fisheries; but it is a branch of industry which has not yet been turned to much account. The obstructions of rivers, and the barbarous methods of fishing pursued, have done much to reduce the productiveness of this source of wealth. Lately the government has devised plans for the protection of the fisheries, and agents to superintend them have been appointed. The river fisheries are hereafter to be leased, and the revenue derived from this source given as bounties to the deep sea fisheries, which the Canadians have hitherto almost entirely abandoned to the French and the Americans. The produce of the fisheries on the Canadian side of Lakes Ontario, Erie, and Huron, was, in 1857, a little short of \$500,000. The kinds chiefly taken are trout, salmon, white-fish, pickerel, and herring. It will give some idea of the abundance of white-fish in Lake Ontario, if we state the fact, recorded on official

authority, that 47,000 of these fish have been taken at one haul, on Wellington beach, in the county of Prince Edward. The salmon fisheries of the St. Lawrence and its tributaries have been wantonly devastated by netting and spearing on the spawning beds. The Lower Canada superintendent of fisheries estimates that, under a proper system of protection, the salmon fisheries of Lower Canada can be made to yield nearly \$500,000 a year.—The climate, although subject to considerable extremes of heat and cold, is not unfavorable to the success of agricultural operations. All the cereals are produced in the greatest perfection. The best wheat-growing district is the peninsula of Upper Canada. In Lower Canada the Hessian fly, and other enemies of the wheat crop, have produced terrible devastation. In the first year of the present century, Lower Canada produced 1,000,000 bushels of wheat in excess of its own wants; but at the end of the half century such a check had been given to the production of this cereal that that section of the province was only producing half enough for the consumption of its own population. For a period of 10 years the mean summer temperature at Toronto was 64.51°, ranging from 63.90° to 66.81° F. The mean maximum summer temperature, for the same period, was 85.26°, ranging from 81.5° to 85.3°. For 7 consecutive winters the mean fall of snow, at the same place, was 57.2 inches; the 2 extremes being 66.2 and 43 inches. The mean winter temperature at Toronto, during the months of December, January, and February, is 25° 51'. The great lakes produce an ameliorating influence on the climate of the Upper Canada peninsula which they form, as is shown by a comparison of temperature with other places to which their influence does not reach. The temperature of the surface water of those lakes, never below 80°, is more frequently over 83°, which is 7 or 8 degrees over the mean temperature at Toronto. The effect of these waters on the temperature may be judged from the fact that, on the Niagara river, the winter temperature does not fall over 2 degrees below the freezing point of water. At Quebec the thermometer occasionally falls 80° below 0 in winter, and in summer rises to 104° F. The Laurentian series of mountains forms a wall of protection from the icy winds of Davis's strait, Hudson's bay, and the Po-

lar sea. The N. valley of Canada is similarly sheltered by the height of land which divides the waters of Hudson's bay from those of the St. Lawrence. The cold winds of the gulf of St. Lawrence are broken by the mountains of Notre Dame. In the upper Saguenay the frost does not injure vegetation till the middle of October, and at Chicoutimi it has been found possible to plough as late as Nov. 12. On the Rat river, in the valley of the St. Maurice, the thermometer sometimes falls as low as 40° below 0; but even there the heat of summer causes grain to come easily to perfection. At the Hudson's Bay post on Lake Temiscaming, the temperature at noon, in the months of June, July, and August, was found to be 70<sup>3</sup>/<sub>8</sub>, 72<sup>1</sup>/<sub>1</sub>, 91<sup>3</sup>/<sub>8</sub>, in the only year, except one, of which we have any record. In the other year, it was in the same months, 69<sup>3</sup>/<sub>8</sub>, 75<sup>1</sup>/<sub>1</sub>, 76<sup>1</sup>/<sub>4</sub>. In Dec., Jan., and Feb., the mean temperature at noon was 28<sup>1</sup>/<sub>8</sub>, 12<sup>1</sup>/<sub>4</sub>, 28<sup>3</sup>/<sub>8</sub>, in one year, and 19<sup>1</sup>/<sub>4</sub>, 17<sup>3</sup>/<sub>8</sub>, 24<sup>3</sup>/<sub>8</sub>, in the other. This lake is 630 feet above the level of the sea. The peach, though not extensively cultivated, thrives tolerably well in Upper Canada; and the results of some limited efforts prove that grape culture, in the open air, is not an impossible enterprise. The heat of the summer is sufficient to bring the grape to maturity; but the summer is hardly long enough, and the cold of winter is unfavorable to most varieties of the vine. Since the time when the Recollet and the Jesuit missionaries made from the wild grape wine with which to perform the functions of their holy office, but little wine has been made in Canada; and when that was done Canada had wider limits than at present.—The last decennial census was taken in 1851-'2, at which time the population was 1,842,266. The population of Upper Canada was 952,004; of Lower Canada, 890,261. In 1857 the population of Upper Canada was, according to an estimate believed to be accurate, although not official, 1,805,923, and that of Lower Canada 1,320,514, making the entire population of the province 2,526,437.—Agriculture is the chief employment of the population, lumbering next, and ship-building, measured by the value of the products, the 3d most important branch of industry. The relative value of the products exported during the last 3 years, will best show in what channels the industry of the country is employed:

	1855.	1856.	1857.
	\$ <sup>s</sup> a. d.	\$ <sup>s</sup> a. d.	\$ <sup>s</sup> a. d.
Produce of the mine.....	31,458 15 8	41,411 18 8	71,617 8 0
" fisheries.....	114,990 1 0	114,036 18 7	185,023 6 0
" forest.....	1,983,980 16 10	2,504,970 15 5	2,982,596 14 3
Animals and their products.....	898,796 0 6	641,014 16 11	626,809 19 11
Agricultural products.....	8,257,529 18 2	2,748,063 17 8	2,220,706 7 0
Manufactures.....	119,019 6 1	98,407 0 4	99,706 4 3
Other articles.....	17,140 18 8	10,799 14 4	80,380 0 4
Total value of exports.....	5,925,975 11 11	7,148,759 16 11	6,016,745 14 8
Value of ships built at Quebec.....	304,886 5 0	308,289 7 6	245,881 0 0
Estimated amount of exports, short returned at inland ports.....	816,268 8 4	569,735 0 0	839,061 5 4
Grand total of exports.....	7,047,115 5 8	8,011,784 4 5	6,751,686 0 0

\* The \$ Halifax currency is about equal to \$4.

The great staple product of Upper Canada is wheat, of which the highest average produce in any township was 26 bushels, and the lowest 6 bushels. Esquering was highest on the list. —The following is a statement of the exports and imports from 1850 to 1857, inclusive:

Year.	Exports.	Imports.
1850.....	23,990,493	24,245,517
1851.....	2,941,180	5,358,697
1852.....	2,513,998	5,071,623
1853.....	5,508,057	7,995,359
1854.....	5,312,837	10,132,351
1855.....	7,047,115	9,021,542
1856.....	8,011,784	10,896,096
1857.....	6,751,656	9,557,649

—The total number of vessels entered inward from sea at the ports of Quebec, Montreal, Amherst, New Carlisle, Gaspé, and Rimouski was, in 1857, 2,047; in 1856, 1,494; and in 1855, 1,168. The aggregate tonnage of these vessels in 1857 was 748,425, and the number of

men employed, 30,490. Of these vessels, 894, with an aggregate tonnage of 477,263 tons, were from Great Britain; 491, with an aggregate tonnage of 63,287 tons, from the other British provinces; 348, with an aggregate tonnage of 83,902 tons, from the United States; 312, with an aggregate tonnage of 119,023 tons, from other foreign countries. The number of vessels that entered outward in 1857 was 1,848; in 1856, 1,582; and in 1855, 1,219. A line of ocean steamers, subsidized by the Canadian government, runs fortnightly between Liverpool and Montreal, during the summer; Portland being their western Atlantic port during winter. This line will shortly be a weekly one. In point of speed, it has beaten the other line. The Leviathan is to run to Portland, Me., in connection with the Grand Trunk railroad of Canada. The following is a statement of the Canadian and American tonnage engaged in the inland navigation between Canada and the United States in 1857:

	INWARD.		OUTWARD.		TOTALS.	
	Canadian.	American.	Canadian.	American.	Inward.	Outward.
Steam.....	1,670,082	2,917,777	1,628,822	2,912,770	3,887,929	3,541,069
Sail.....	867,654	980,061	855,745	214,552	647,715	572,297
Total.....	2,537,736	3,897,838	2,484,567	3,127,322	3,946,104	4,113,366
INWARD AND OUTWARD.						
Canadian Steam.....	3,298,374				3,298,374	
Canadian Sail.....	748,399				4,046,773	
American Steam.....	4,490,547				4,967,100	
American Sail.....	476,613				5,943,883	
Inward and outward.....					5,943,883	
Add	do.	do.	of sea-going vessels.....		1,479,791	
Total.....					Tons, 10,423,725	

The Canadian trade with the United States is greater than with any other country, as the following statement of the course of Canadian trade in 1857 shows:

	Value of Exports.			Value of Imports.		
	£	s.	d.	£	s.	d.
Great Britain.....	2,775,511	3	1	4,869,756	6	5
North American Colonies...	318,909	15	9	187,979	2	0
British West Indies.....				6,705	18	10
United States of America...	3,801,809	0	6	5,056,169	14	10
Other Foreign Countries....	66,674	15	4	217,052	14	8
Total.....	6,962,904	14	8	10,857,649	11	9

In 1851 Canada had only a few miles of railroad; now she has, in round numbers, 2,000 m. This extraordinary railway development is due mainly to the assistance extended to these enterprises by the government and municipal corporations. In 1851, an act was passed by the legislature authorizing municipalities to incur extra-municipal expenditures for railroad purposes. Previous to that time, an act had been passed pledging government aid to any railroad within the province over a certain length. It was afterward found necessary to repeal this statute, on the projection of the Grand

Trunk railway, which extends from Portland, in the state of Maine, to Sarnia, on the western frontier of the province. A very large portion of the debt incurred by municipalities, on the credit of the consolidated municipal loan fund, was for railroad purposes; and the provincial government has largely increased its debt and annual expenses for the same purpose. To avoid the expense of the transposition of freight at Montreal, a tubular iron bridge is being constructed across the St. Lawrence, at a cost of \$7,500,000. It rests on a series of abutments which are so constructed as to have all the solidity of a rock. Those already completed have borne the pressure of the vast masses of ice which jam against them in the spring, without sustaining the least injury. The length of the bridge is 7,000 feet; and the structure will be one of the most extraordinary works ever erected by man. The next most important railroad after the Grand Trunk, which when completed will have a length of 1,026 m., is the Grand Western, which connects the S. bank of the Niagara river, a railway suspension bridge being constructed below the falls, with the western frontier of the province. This road will soon

have 2 western termini: one at Sarnia, in addition to that now in use at Windsor, opposite Detroit; the diverging point being at London. Prescott, on the St. Lawrence, one of the stations of the Grand Trunk, is connected with Ottawa, the future capital, by a railroad 54 m. in length. From Cobourg to Peterborough, bridging Rice lake in the interval, runs a railroad 28 m. in length. From Port Hope another iron arm strikes out from the Grand Trunk to Lindsay, a distance of 41 m. Lake Ontario and the Georgian bay are connected by a railroad 95 m. long, of which the termini are Toronto and Collingwood. The 8d most important railroad is the Buffalo and Lake Huron, which runs from Fort Erie to Goderich; its length is 114 m. The London and Port Stanley railroad is 24 m. long; the Carillon and Grenville, 12½ m.; the Champlain and St. Lawrence, from Montreal to Rouse's Point, 43 m.; the Galt and Guelph, 4 m.; the Industry Village and Rawdon, 10½ m.; the Montreal and New York, from Montreal to Lachine, thence by steam ferry to Caughnawaga, and from that point to Mozer's Junction, 38 m. Several other railroads have been projected, and some of them are in course of construction. Among the latter are the Brockville and Ottawa, and the Welland. The most important of the projected railways not yet commenced are the Ottawa and Georgian bay, and the Great Southern; the route of the latter lying on the plateau of Lake Erie, the proposed termini being on the Niagara and Detroit rivers. The Canadian, Nova Scotian, and New Brunswick governments are urging the imperial government to lend assistance to construct an international railroad connecting all these provinces. It is proposed that this international railroad should consist of an extension of the Grand Trunk railroad eastward from Riviere du Loup. One of the grounds on which imperial aid is asked, is that such a means of communication with the ocean would be requisite in case of war with the United States. The imperial government once promised some such aid as that now asked, but withdrew in consequence of being released, as it considered, from the obligation by a difference of opinion regarding the location of the line.—The system of public education in operation, in spite of some differences of opinion as to the policy of permitting separate Roman Catholic schools in Upper Canada, has been attended with a very fair share of success. The common schools are under the control of 2 chief superintendents of education, one for Upper and the other for Lower Canada. The first essays at state education in Upper Canada date far back; but the present system of common schools may be said to have had its origin in the year 1846. In Upper Canada separate schools for Roman Catholics and negroes are permitted to be established; and the provision of the law is wide enough to include other religious denominations. Hitherto these exceptional provisions have been made use of exclu-

sively by Roman Catholics. In Lower Canada, where the majority of the population is Roman Catholic, the law makes provision for separate Protestant schools. The Bible is used as a class book in 1,854 out of 3,472 common schools in Upper Canada. The legislature makes a liberal grant annually for common schools; and as the money is distributed on the principle of helping those who help themselves, a very large sum is contributed by the people in the way of voluntary local taxation. In 1856, the amount spent for educational purposes in Lower Canada was £249,801. In Upper Canada the amount spent for common school education alone, in 1857, was £322,524. The amount of the legislative school grant that year was £32,951 for each section of the province. The law made it necessary that an equal sum should be raised by the municipalities to entitle them to this aid, and in Upper Canada they raised £27,827 more than the law required. In Lower Canada, also, in 1856, the voluntary assessment exceeded by £23,474 the amount of legislative grant. In Upper Canada each school section annually decides by vote, whether the schools shall be free, or the children in attendance be required to contribute a certain amount by rate-bill. In 1857 only £36,428 was contributed by rate-bill on children; and were this amount levied on property all the schools would be absolutely free. As it is, less than one-half of them are free; but the amount contributed by the scholars is, in a very large number of cases, merely nominal. The number of children attending school in Upper Canada, in 1857, was 247,434; and as the whole number of children of school age, between the ages of 5 and 16, was 324,883, it follows that there were 77,454 between these ages who were not in attendance at school. A large proportion of this number may have been made up of children between the ages of 5 and 7, and 13 and 16, the greater part of whom may hereafter attend, or have attended school in the intermediate years from 7 to 13. In 1856, there were 218,216 children in Lower Canada of school age; and of these 121,755 attended schools within their respective municipalities. The Catholic schools and seminaries of Montreal and Quebec contained nearly 17,000 pupils. The following comparative statement shows the number of educational institutions in Lower Canada, the number of pupils, and the amount of the contributions:

	1852.	1854.	1855.	1856.
Institutions.....	2,859	2,795	2,800	2,919
Pupils.....	108,984	119,788	127,058	143,141
Contributions.....	£41,462	£50,508	£62,354	£101,601

The attainments of the children attending schools in Lower Canada may be gathered from the following official statement, showing the comparative numbers and proficiency of the pupils in 4 different years, and the principal branches of study:



	1853.	1854.	1855.	1856.
Pupils reading well.....	27,367	32,861	43,407	46,940
" writing well.....	50,072	47,014	55,023	50,086
" learning simple arith'm.	15,281	22,897	30,631	43,369
" " compound.....	12,448	18,078	22,586	23,431
" " book-keeping.....		729	1,976	5,012
" " geography.....	12,185	18,826	17,700	30,134
" " history.....	6,738	11,456	15,520	17,589
" " French grammar.....	15,838	17,892	23,350	33,323
" " English.....	7,066	7,097	9,004	11,824
" " parsing.....	4,412	9,253	16,439	26,810

There were 877 students receiving a professional or university education in Lower Canada in 1856; 2,170 receiving a classical education; 16,998 receiving an academical education; 15,564 receiving a primary and superior education, and 108,404 receiving an elementary education. In the academies of Lower Canada nearly all the teachers, male and female, belong to some religious order; and some of the textbooks are of a devotional cast, as for example, the *Devoir du Chrétien*, published by the Christian Brothers. In the Upper Canada schools the Irish national series of books is used. In Upper Canada there is 1, and in Lower Canada 3 normal schools for the training of teachers. Attached to these are model schools, where the young teachers learn to apply the knowledge they have obtained to the purpose to which they have come under an obligation to devote their lives. In Lower Canada there are 97 parochial libraries, containing an aggregate of 57,493 vols. Some of the educational institutions of Lower Canada, such as the seminary of St. Sulpice, at Montreal, possess wealthy endowments, which it is just possible may some day excite the cupidity of a legislature, the majority of whose members will be of a hostile faith. An incipient crusade against religious corporations points to such a result as possible. The power to hold real estate, and the actual holding of real estate by such corporations, has been conferred to an extent which many look upon as dangerous to the commonwealth. While common schools are supported at the public cost, the higher branches of education are not neglected. At Toronto there is a university—the university of Toronto—endowed with 225,000 acres of public lands. In 1857 and 1858 buildings for this university were erected at a cost of £70,000. There is also a church of England university—Trinity—at Toronto, endowed and supported by private means. There are Laval university, at Quebec, and McGill college, with university powers, Queen's college in Kingston, and Victoria college in Cobourg, both of which possess university powers. There are beside several other smaller colleges, especially in Lower Canada. There are district grammar-schools in Upper Canada; but perhaps they are not very efficient. Of these, there were 61 in 1856. Connected with the educational system of this section of the province are free public libraries, established by municipal corporations. In 1856 there were 7,558 students at colleges, academies, and private schools, in Upper Canada.

da. The Canadians have wisely acted upon the conviction that a system of government which rests on popular suffrage needs, for its successful operation, a community among whom education is generally diffused. The municipal system in operation confers local self-government, in its most unstinted form, upon villages, towns, cities, townships, and councils. The system of public education in operation is calculated to qualify the population to make a right use of the privilege of local self-government; and the municipal council serves as a training school for some of those who are hereafter to take a part in the provincial legislature.—There are 20 daily, 18 tri-weekly, 15 semi-weekly, and 156 weekly journals published in Canada, altogether 209. In politics 57 of them are liberal, 67 reformatory, and 43 conservative. In religion 104 are Protestant, 18 Roman Catholic, and 87 neutral. The journals are issued in 88 different towns. The circulation of the local journals varies from 500 to 1,500, averaging about 1,000 copies. The principal journals are, the "Toronto Globe," the "Herald" of Montreal, the "Witness" of Montreal, the "Atlas" of Toronto, the "Calvinist" of Toronto, the "Leader" of Toronto, the *Courrier du Canada* of Quebec, and *La Minerve* of Montreal (Roman Catholic); there are 5 German journals, one of which is Roman Catholic.—The revenue and expenditure of the government during the 8 years ending with 1857, were as follows:

Years.	Revenue.	Expenditure.
1850.....	\$704,394	\$532,063
1851.....	842,134	624,666
1852.....	890,581	797,125
1853.....	1,195,178	744,195
1854.....	1,269,306	922,089
1855.....	1,019,093	939,443
1856.....	1,233,666	1,050,714
1857.....	1,107,338	1,192,835

Of the revenue of 1856, over £1,000,000 was derived from customs. The remaining sources of revenue were excise, crown territory, tax on bank issues, public works, fines and forfeitures, casual revenue, land fee fund, and the general post office.—In 1852, the gross receipts of tolls on the canals was £84,602; in 1853, £95,814; in 1854, £82,765; in 1855, £81,173; in 1856, £95,895. During these years, the average net revenue, exclusive of repairs and other incidental expenses, was only £66,661. The repairs more than absorb the whole receipts. These canals cost £3,514,000, the interest of which is about £250,000; so that the convenience they afford is not obtained without a heavy cost to the province.—The amount of the public debt, direct and indirect, is £12,879,295. Of this amount, £5,867,564 was contracted for the direct purposes of the government, chiefly on account of public works. Of the remainder, £5,300,408 was contracted for the purpose of aiding railroad enterprises, and £2,211,323 has been borrowed by municipal corporations, on the credit of a common municipal loan fund, out of which, as administrator, the government

undertakes to pay the interest and principal. Whether the government is otherwise or further responsible on account of this fund, is an undetermined question. £1,500,000 sterling of this debt is guaranteed by the British government; the remainder is raised by the issue of debentures, on the credit of the province, generally bearing 6 per cent., although the premium at which they ordinarily sell makes the interest in reality but little over 4½ per cent.—In the spring of 1534, Jacques Cartier, or Quartier, as the ancient French historians write the name, a French navigator, under orders from the king, sailed from St. Malo, with 3 vessels of 61 tons each, and 61 men; at the end of 30 days he reached Newfoundland, and penetrating the strait of Belle Isle, entered the St. Lawrence, having made the discovery of Canada. Entering the Baie des Chaleur, Cartier took possession of the country, in the name of his sovereign, in spite of the protestations of a chief of the race who were the owners of the soil. A large wooden cross was placed on a neighboring eminence, as if to announce the religious mission of the discovering nation, in the Nouvelle France, that was to rise up on this side of the Atlantic. The other principal navigator whose name is connected with Canadian discoveries, is Champlain. Beside the lake which bears his name, he discovered the lakes Ontario and Nipissing. When colonization was seriously commenced, it was conducted on a plan very different from that pursued in New England. The colony was semi-military, semi-religious. The Recollect and the Jesuit missionaries traversed the country in all directions, enduring incredible hardships to secure the conversion of the Indians. Garrisoned forts were constructed at every prominent point from Quebec to Florida; and those on the shores of Hudson's bay were sometimes in the hands of the French and sometimes in possession of the English. The French were frequently at war with the Indians, having for their enemies the Iroquois, the most ferocious tribe that dwelt on the S. side of the lakes; occupying, in point of ferocity, the same relative position that the Caribs did in Hispaniola. For allies the French had the more timid and less warlike Hurons, who were driven from the peninsula of Upper Canada by the Iroquois in 1636, taking refuge on St. Joseph's island, where numbers of them perished miserably of famine during the winter. The feudal system, on the model of the *Coutumes de Paris*, was established; and thus a nobility, who generally possessed nothing but their swords and the land granted to them as seigniors, sprang up on the virgin banks of the St. Lawrence. The seigniors were obliged to concede the lands granted to them, when demanded by settlers, on certain conditions. They were not absolute proprietors; but they possessed certain rights in the soil and were obliged to perform certain duties. It was incumbent on them to build mills, and on the *censitaires* to patronise these mills; all water

power pertained to them; they had a right to charge a nominal rent, which has generally been stated at 2 sous per arpent; when the *censitaires* sold their improvements and the rights they had acquired in the lands, a portion of the money went to the seignior. He possessed several other rights of a beneficiary nature, as well as some of a personal kind. This system became ultimately unsuited to the advanced state of society; but it was not till 1854 that the legislature made provision for its abolition, and the commission appointed to determine the respective rights of seigniors and *censitaires* has not yet completed its labors. In 1629 Quebec fell into the hands of the English, who were led on by 3 refugee French Calvinists, whose sect had been formally excluded from the colony. On March 29, 1632, Canada was restored to its ancient mistress by the treaty of St. Germain-en-Laye. In 1668 one of the most remarkable earthquakes on record occurred in Canada. It commenced on Feb. 5, and continued, with some short intermissions, over 6 months. It changed the entire face of the country, causing mountains and rivers to disappear, and forming lakes where mountains had stood before. The fountains were dried up, and the color of the rivers changed, some of them having their waters tinged with yellow, others with red, those of the St. Lawrence being white as far down as Tadoussac. Near Three Rivers 2 mountains are said to have been precipitated into the St. Lawrence, to have changed its course, and to have given the white appearance to the vast body of water which it contained. Near Tadoussac the continuity of the motion was least broken, and at that point a storm of ashes is said to have been driven across the St. Lawrence. The tone of portions of the contemporary narrative gives reason to suspect exaggeration, the more especially as not a single colonist was injured, and none of the houses suffered greater damage than the falling of a chimney. In the infancy of the colony the governors, in connection with the intendant, held the military and civil administration in their hands; and in connection with the seigniors, who possessed the right of administering justice in their seigniories, they exercised judicial functions. In time the accumulation of duties rendered it necessary for the governors, of whom there were 3—one at Quebec, another at Three Rivers, and a 3d at Montreal—to perform part of their functions by deputy. Jesuit and other priests became conspicuous in the public service. Afterward, at the instance of the parliament of Paris, which had supreme control in all the affairs of the colony, the French king established the *council souverain de Québec*. Beside acting as a court of appeal when the decisions of the subaltern judges were called in question, the supreme council registered, upon the order of the king, all edicts, ordinances, declarations, letters patent, &c. It was composed at first of the governor, the bishop, 6 councillors appointed by them every year, and

a king's attorney. The intendant was afterward accorded a place in the supreme council, which had power to hold its sittings at Three Rivers, Montreal, or any other place, as well as Quebec. After the appointment of a bishop of Quebec, serious dissensions broke out between the civil and ecclesiastical authorities, victory sometimes declaring for one side and sometimes for the other. Bishop Laval was powerful enough to procure the recall of a governor, and the appointment of a successor of his own selection. The supreme council, on the other hand, reduced the tithes payable by the Roman Catholics from  $\frac{1}{10}$  to  $\frac{1}{20}$ , at which point they still remain. In 1689 an English fleet, under Admiral Phipps, made an unsuccessful attack upon Quebec, and after receiving considerable damage the fleet had to retire under cover of a dark night. The establishment of the French colony at Detroit, and the discovery of the Mississippi by La Salle, are among the principal events of this part of the history of Canada.—By the treaty of Utrecht, signed April 11, 1718, Louis XIV. ceded to England Hudson's bay, Newfoundland, and Acadia (Nova Scotia), and renounced all right to the Iroquois country, reserving to France only the valleys of the St. Lawrence and the Mississippi. The terms of the treaty were sufficiently vague to give rise to disputes as to the extent of the territories respectively belonging to each country; and as the ambition of neither country was willing to be confined to the limits which the other wished to assign it, a final struggle for supremacy, extending over a period of 7 years, ended by the cession of Canada to England and of Louisiana to Spain, 1763. The conquered colonists were guaranteed the free exercise of their religion, and the right of the Catholic clergy to continue to receive their accustomed rights and dues. Whether the subsequent confiscation of the Jesuits' estates was a violation of this stipulation is a question that has been much disputed. In 1774 the parliament of England passed an act to provide for the government of the province of Quebec, as the new acquisition was then called. By this act the king was empowered to appoint a council of not less than 17 nor more than 23 members, for the government of the colony. Except for public roads or buildings, the council was not empowered to levy taxes, and no ordinance which it might pass concerning religion was to be valid till it had received the express approbation of the king. The criminal law of England, which had previously been extended to the colony, was continued in force. This arrangement continued till 1791, when Canada was, by an act of the imperial parliament, divided into 2 provinces, Upper Canada and Lower Canada. To each a popular assembly and a crown-nominated legislative council were given. The crown was empowered to confer hereditary titles upon residents of the colony. The legislature was to meet once every year. The governors, appointed by the crown, might reserve

for the pleasure of the sovereign any bill which the legislature might pass. Authority was given to reserve  $\frac{1}{4}$  of the public lands for the support of a Protestant clergy, the apparent intention being to constitute them endowments of church of England rectories. For this purpose some 8,400,000 acres were set apart; but very few of them were ever actually applied to the endowment of rectories, the instructions to this effect of the imperial government having been disobeyed; and in 1854 an act of the provincial legislature was passed to devote the whole of these lands to secular purposes. Thus the idea of establishing a state church in Canada was relinquished. Disputes regarding the interpretation of the constitutional act arose. One party contended that Canada was in possession of a transcript of the British constitution, and that the advisers of the governors in matters of state should be responsible to the commons house of assembly. The other party denied the necessity of any accord between the executive council and the legislative assembly. The attempt to make the local government responsible to the popular branch of the legislature was not successful till 1841, the year after an imperial act had been passed to unite the provinces under one administration and one legislature. The definite establishment of a responsible government, in 1841, was effected by a series of resolutions passed by the legislative assembly, in which the other chamber was not invited to concur. In this simple manner was consummated a revolution which bears some analogy to that of 1688 in England. But, in 1841, victory was already achieved for the principle of constitutional government, before its formal declaration by the resolutions of the popular chamber. The antecedent struggle between oligarchy and the constitutional principle had been long, fierce, and sanguinary. It was marked by open insurrection in 1837 and 1838. The popular complaints which preceded that outbreak were numerous, but they are all referable to the single circumstance of an irresponsible administration. In the rebellion, which had Mr. Louis Joseph Papineau for chief in Lower Canada, and Mr. William Lyon Mackenzie in Upper Canada, a considerable number of lives were lost; some executions, after the failure of the enterprise, took place; many who had been implicated in the movement fled for protection to the United States, and several were illegally banished by Lord Durham to the island of Bermuda. There were some serious engagements between the troops or militia and the insurgents; and of these the most severe took place at Prescott, where the rebels had taken refuge in a stone wind-mill, from which they were ultimately driven by fire being set to combustible matter in the lower part of the building. Many Americans who sympathized with the insurgents took part in the battle. An eye-witness informed the writer that he counted 110 dead bodies on the snow, on the morning after the battle. For some weeks the Upper Canada in-

insurgents had possession of Navy island, situated in the Niagara river, just above the falls; all attempts of the militia, under Sir Allan MacNab, to dislodge them, proving fruitless. In 1849 a general amnesty was passed. The Canadian system of government now professes to be modelled after that of Great Britain; and although this is true to a very great extent, it is not impossible to detect points of difference. There are 2 legislative chambers, the legislative council and the legislative assembly; a cabinet which generally consists of 10 members, responsible to the legislature, and liable to be ousted by the votes of a hostile majority; and a governor-general appointed by the queen and paid by the Canadians, his salary being over \$31,000 a year. The legislative assembly consists of 180 members, elected one half by Upper Canada, and the other half by Lower Canada, for a term of 4 years, but liable to be dissolved at any time by an exercise of the governor-general's prerogative, as representative of the crown, upon the advice of his ministers. Previous to 1856, the legislative council was nominated exclusively by the crown, the recommendations being made by the local executive. In that year an act was passed to apply the principle of election gradually to this chamber, the crown-nominated members retaining their seats for life. A portion of the new members have already been elected. The number of elected members will ultimately be 48. The members of both houses are paid an indemnity, which has for several years been made \$6 a day, though fixed by law at \$4, for their expenses when in attendance during the session. The sessions of the legislature have, since 1849, when the parliament houses in Montreal were burned by a mob infuriated by a measure introduced by the government to pay certain losses incurred by individuals in the rebellion, been held every alternate 4 years in Toronto and Quebec. In the autumn of 1859, a removal from Toronto will take place. A moving capital being found inconvenient and entailing great unnecessary expense, and the strength of local jealousies rendering it impossible for the local legislature to select any particular city for a permanent capital, both houses agreed to an address, in 1857, remitting the question to the queen for solution. Her majesty selected Ottawa, which, though by no means a large city, has the advantages of a central locality, literally standing with one foot in Upper Canada and the other in Lower Canada. Montreal, the largest city in the province, Quebec, Toronto, and Kingston, all of which had at one time or other been the temporary capital, unsuccessfully urged their claims to be constituted the permanent seat of the Canadian government.

CANADA, a village of New Mexico, a few miles N. of Santa Fé. A conflict took place here, Jan. 24, 1848, between the insurgents of the territory and the U. S. troops under Col. Price.

CANADIAN RIVER rises among the Guadalupe mountains, in New Mexico, and after flow-

ing S. for about 200 m. makes a bend to the E., passes through portions of Texas and the Indian territory, and enters Arkansas river about 500 m. from its mouth. Its total course is 900 m. Although during the dry months it is a small, shallow stream, the melted snows and ice of spring swell its waters until it frequently overflows its banks. It is sometimes called the Rio Colorado, from the slight tinge which colors its waters. The North Fork, or Rio Nutria, is its principal tributary.

CANAJOHARIE, a village and township in Montgomery co., N. Y., on the Mohawk river and the Erie canal, contains a number of churches, a bank, and an academy. There are stone quarries in the vicinity. Pop. of the township in 1855, 4,022; of the village, 1,500.

CANAL. As commonly employed, this term signifies an artificial water channel made for the passage of boats through the interior of a country; but it is also applicable to channels made for other purposes, as the canals of the ancient Egyptians, originally designed to supply water for irrigating the lands they cultivated. Some of these afterward came to be used for boats. Canals, too, have been constructed for conveying away water and draining lands; and all aqueducts, for whatever purpose made, are properly canals. Herodotus and Pliny make mention of navigable canals in Asia Minor and Liguria; and the latter describes the canal excavated by Drusus, in the reign of Augustus, from the Rhine to the Yssel, making a new mouth from the Rhine to the sea. Xerxes is said to have constructed a canal across the low isthmus of Athos, and several attempts were made by the Greeks, and afterward under the Roman emperors, to connect the Ionian sea with the archipelago by one across the isthmus of Corinth. The importance of canals for inland navigation was early appreciated by the Chinese, with whom a complete system of them has long been in operation, crossing their great rivers from N. to S., and combined with these, that extend to remote parts of their wide territory, forming a net-work of water communication that has never been surpassed in any other country. Rivers were diverted into entirely new channels to form them. The great canal, which connects the Pei-ho, or river of Pekin, with the great central stream of Yang-tse-kiang, 500 m. distant, is fed by a considerable river, which at the summit of the canal is turned in either direction to feed it. The canal with the rivers forms a communication, interrupted only by a narrow interval, that extends from Pekin to Canton, a distance of 1,000 m. Unacquainted with locks, they raise or lower their boats from one level to another on inclined planes by the use of capstans. A considerable part of this canal—that between the Hoang-ho and the Yang-tse-kiang—is supposed to have been constructed about the 7th century. In the 12th century canals were first constructed in the Netherlands, and their perfect adaptation to the flat country of Holland caused them to be rapidly extended through

this state, till they now connect all its villages, and are used as roads. The city of Amsterdam owes its present commercial prosperity entirely to the facilities afforded by its ship canal of 51 m. in length, which connects the river Y, by a direct channel, with the German ocean. This canal, one of the largest works of the kind in Europe, was constructed between the years 1819 and 1825, at an expense of £850,000. Its dimensions are so great that 2 large merchant vessels or frigates can pass each other. Attention was given at an early day to the subject of canals in the Italian states, and the invention of the canal lock is commonly attributed to 2 of their engineers of the 14th century, though Belidor, in his *Architecture hydraulique*, gives the credit of the invention to the Dutch. Some writers say that Leonardo da Vinci first used locks on the Milanese canals in 1497, and soon after introduced them into France.—All the countries in Europe had constructed several canals before they were known in Great Britain. In 1755 the duke of Bridgewater brought forward the project of connecting Manchester with Worsley by a canal; and when this had been successfully accomplished, other works of the same kind were built in such numbers, that before the introduction of railroads it was estimated there were over 2,300 m. of navigable canals in England, beside much slack-water navigation upon the rivers made use of in con-

nection with the canals. South of Durham it is believed there is not a spot in England 15 m. from water communication. But the introduction of railroads has greatly lessened their importance, and though they still continue to be used for the transportation of heavy freight, their day is evidently regarded as having passed, and no new enterprises of this class are any longer planned. The same remark may be made of the canals of the United States. Perhaps the earliest constructed of these are the South Hadley and the Montague canals, both undertaken by a company chartered in Massachusetts in 1792. They are short canals for passing the rapids at South Hadley and the Montague falls, the former 3 m. in length, with lockage of 40 feet, and the latter 8 m., with 75 ft. lockage. In the former there is a cut 40 feet deep and 800 feet long in solid rock. The Middlesex canal, 27 m. in length, connecting Boston harbor with the Merrimac at Chelmsford, now Lowell, was completed in 1808. The Erie canal was completed in 1825, at an expense of \$7,602,000. Its locks, all of stone masonry, were originally 90 feet long in the clear, and 15 feet wide. The following table comprises those canals of the United States and Canada of which the cost has exceeded \$1,000,000 each; it is part of the larger table in Wm. J. McAlpine's report to the N. Y. legislature in 1858:

NAME.	STATE.	Length in miles.	COST.	Cost per mile.	Width at surface, feet.	Depth, feet.	LOCKS.				Number of locks.
							Length, feet.	Width, feet.	Number.	Lift, feet.	
Erie .....	New York....	363	\$7,148,789	\$19,679	40	4	90	15	84	...	80
Champlain.....	"	68	1,257,004	19,962	..	..	100	..	19	194	..
Chenango.....	"	97	2,419,956	24,946	..	..	..	..	117	1,009	..
Central Division.....	Penn., public.	173	5,307,252	30,677	40	4	90	15	110	671	80
Western do.....	"	104	8,096,522	...	..	..	..	..	70	471	..
Susquehanna Division.....	"	89	1,089,256	28,647	..	..	..	..	13	85	..
North Branch.....	"	73	1,096,178	15,016	..	..	..	..	8	69	..
North Branch Extension.....	"	90	8,528,202	39,308	..	..	90	15	29	1891	80
Delaware Division.....	"	60	1,375,715	21,361	40	5	90	11	28	164	..
Schuylkill.....	" private	108	2,500,176	28,149	38	8	80	17	190	610	..
Lehigh.....	"	85	4,455,099	51,206	60	5	100	30	81	1,289	100
Union.....	"	82	...	...	38	4	75	8	95	519	..
Delaware and Hudson.....	N. Y. & Penn.	108	2,500,000	28,150	32	4	76	9	107	900	50
Do. do. enlarged.....	"	108	6,500,000	60,200	44	6	100	15	...	140	...
Delaware and Baritan Feeder.....	New Jersey..	48	2,844,108	66,150	75	7	110	24	18	116	228
Morris and Essex.....	"	101	2,100,000	30,698	32	4	..	..	...	1,674	..
Chesapeake and Delaware.....	Del. and Md..	134	2,750,000	208,708	66	10	100	22	4	...	...
Chesapeake and Ohio.....	Maryland....	191	10,000,000	52,856	70	6	..	..	...	600	150
Ohio and Erie.....	Ohio.....	307	4,695,824	15,300	40	4	90	15	153	1,185	..
Miami.....	"	178	8,750,000	31,067	..	..	..	..	102	731	..
Sandy and Beaver.....	"	76	1,500,000	19,732	..	..	90	15	...	...	80
James River and Kanawha.....	Virginia.....	147	5,020,050	34,150	40	4	100	15	...	1,916	..
Wabash and Erie.....	Indiana.....	879	...	...	60	4	..	..	...	...	..
Do. do.....	"	90	8,057,120	38,968	45	3	..	..	...	...	..
Illinois and Michigan.....	Illinois.....	102	8,654,337	84,846	60	6	..	..	2	30	150
Welland.....	Canada.....	86	7,000,000	194,444	71	10	150	26	27	844	500
St. Lawrence.....	"	10	1,000,000	100,000	90	10	900	45	6	80	..
Cornwall.....	"	12	2,000,000	166,666	150	10	900	55	7	48	..
Beauharnois.....	"	11	1,500,000	136,363	190	10	300	45	9	48	..
Lachine.....	"	8	2,000,000	250,000	190	10	300	55	5	45	..

The Erie canal as enlarged will measure in width at level of water 70 feet, at bottom 42 feet; depth of water 7 feet, width of tow path 14 feet. As will be observed in the preceding table, the dimensions of canals are very variable, according to the kind and amount of transportation for which they are intended to provide. Those of

Canada are built to open a communication between the great lakes and the ocean; and by means of them it is practicable for vessels to clear from Chicago, at the head of Lake Michigan, direct for Liverpool. The Erie and the Delaware and Hudson are examples of canals proving of too small dimensions for their increasing

business. The latter, with a capacity for boats of 50 tons, transported freight at a cost of \$1 per ton for 106 miles. The engineer of the canal, Mr. R. F. Lord, estimated that, enlarged to the capacity of boats of 100 tons, the charge would be reduced to 65c., or  $5\frac{1}{2}$  mills per ton per mile; to the capacity of boats of 116 tons, to 58c., or  $5\frac{1}{4}$  mills per ton per mile; and of boats of 186 tons, to 50c., or  $4\frac{1}{2}$  mills per ton per mile. The enlargement to the greatest capacity named was commenced in 1848, and the actual cost of transportation in boats of 116 to 141 tons sustains the correctness of the estimated saving.—The channel excavated for a canal is formed with the two sides sloping at the same angle. This angle varies with the nature of the soil. In this country the base of the slope commonly exceeds the height in the proportion of 5 to 4 or 3 to 2; and then, to prevent the banks wasting away by the wash of the water, they are faced near the top with stone. The breadth of the canal at bottom is usually at least twice that of the boats upon deck, thus securing sufficient room for passing. The depth should be at least one foot greater than the draught of water of the loaded boats. The tow path, built upon one side, is about 2 feet above the level of the water, and 8 to 12 feet wide. The water that falls upon this should drain outward, and not into the canal, and for receiving this a ditch is sometimes constructed outside of the towing path, and another outside of the opposite bank. Where the soil is not retentive, the bottoms and sides require to be puddled with clay tempered and well mixed with sand and gravel. This is put on in successive layers of 2 or 3 inches each, as the under layers set. Each layer, however, should be made to unite with the one it is laid upon, by working this up to roughen its surface. The puddling often requires repairs; and these in the colder parts of the country are conveniently made when the water is let out of the canal for the winter. Puddling serves to prevent the burrowing of animals under the canal, by which much mischief is often produced; a small hole rapidly becoming a large one by the flow of the water through it. In retentive soils puddle ditches are sometimes sunk in the banks, and filled with clay or other material, to intercept the progress of burrowing animals. The bed of canals is made so nearly level, that the water will flow with a gentle current from one end of a level to replace the water drawn off at the lower end. The levels are the spaces between two locks, each level being at a greater or less elevation than the one adjoining. These changes of level succeed each other rapidly in hilly districts, and they are often so great that several locks are required, one immediately following another like a flight of stairs, in order to overcome the difference of elevation. The Erie canal presents a level of 63 m. in length without a lock, and at Lockport, where it descends from the level of Lake Erie to that of the Genesee river, there is a succession of

10 double locks built in masonry, overcoming a difference of elevation of 60 feet. As ordinarily constructed, a lock is a chamber of timber or masonry, long and wide enough to receive the largest boats that navigate the canal. Indeed, the size of the boats is limited by that of the locks. Its bottom reaches to that of the lower level, or pound, as it is called by the English, at the termination of which it is placed, and its top is a little above the surface of the water in the upper pound. Each end is closed by heavy swinging doors, which open in the middle against the direction of the current. The width of the 2 doors being a little greater than that of the lock, they meet before they form a right angle with the sides of this, and consequently brace against each other, and form a close fit when the water presses against them. The upper gates, reaching only to the bottom of the upper pound, are as much shorter than the lower gates, as the difference of elevation of the upper and lower level. The gates near their lower end are furnished with sliding valves, which may be controlled from above, and which serve, when opened, to admit the passage of water through the gates, when these are closed and cannot be opened for the pressure of the water against them. When a boat ascending the canal comes to a lock, the lower gates being open, it passes in, and the gates are immediately closed behind it. Water is then allowed to flow through the upper gates, or through a sluice discharging from the upper level into the lock. As this fills, the boat is lifted up, the upper gates are gradually freed, so that they can be opened and the boat can pass through upon the higher level. Were another boat to follow in the same direction, the upper gates must be first closed, and the lock emptied through the lower gates. These being then opened, the boat can pass in, and the process be repeated. In this operation there would be a lock full of water discharged to a lower level, which might have been used for letting down a boat, had there been one ready to pass in the opposite direction. Hence, when the supply of water is limited, there is economy in passing the boats alternately each way through the locks, beside thus expediting the passage of the greatest number. The common lift of a lock is 8 or 10 feet, though it is occasionally much less, and is sometimes as great as 18 feet. Canals are supplied with water upon their upper levels, to replace what is consumed by evaporation, leakage, and the passage of the boats through the locks. Upon every mile of the Erie canal, Mr. J. B. Jervis estimated the loss, without reckoning that caused by opening the locks, to be 100 cubic feet per minute. Knowing the number of boats that pass, the quantity of water they displace, and the size of the locks, the required supply of water may be estimated. Reservoirs are often constructed to contain surplus quantities, and furnish it as wanted. Branches of a canal, called feeders, are sometimes made to bring water from distant sources; and steam power is also

employed to raise water from a low level to feed the upper levels of the canal; as at Chicago, where the water of Lake Michigan is pumped up to flow into the summit level of the Illinois and Michigan canal. Inclined planes, upon which trucks for carrying the boats are worked by steam power, are substituted for locks upon some canals, as the Morris and Essex in New Jersey. These have a slope of 1 in 21, and at the lower end are continued far enough under the water for the truck to pass beneath the floating boat. At the upper end the rails curve over the dam, which holds back the water of the upper level, and then slope away beneath the surface far enough for the boat to float on or off the truck. The boats are secured to the carriage by chains, and the whole is moved by an endless chain carried by a stationary steam engine. Similar planes were constructed on the Shropshire canal in England many years ago; one of which was 1,800 feet long with a perpendicular rise of 126 feet, and another rose 207 feet in a length of 1,050 feet. Some remarkable contrivances have been devised in England for passing canal boats from one level to another with the least possible expenditure of water. By one the descending boat is made to counterbalance the ascending one, and the horse that draws the boat upon the canal is used to move the machinery.—The business of canals is now principally limited to the transportation of heavy freight, as coal, lumber, the products of mines and farms. The expense of moving these upon existing canals is so low, that such canals on lines of large trade will long be able to compete with railroads, especially those with difficult grades. But for transporting passengers and costly freight, and all such materials as are liable to injury by delays, the business of canals is already superseded by railroads. From the report of Mr. McAlpine, already referred to, it appears that in 1848 coal was transported on the Chesapeake and Ohio canal from Cumberland to Georgetown, 184.4 miles, at an expense of \$78 06 per 100 tons, or  $4\frac{1}{2}$  mills per ton per mile, including interest on cost of boats and fixtures, repairs and depreciation, wages, cost of towing, loading and unloading. On the Schuylkill, and the Delaware and Hudson canals, the expense, including all these items, was \$44 54 for 108 m., or  $4\frac{1}{2}$  mills per ton per mile. On the Schuylkill canal in 1852 the cost was estimated at 6 mills per ton per mile; and on the Delaware and Hudson before its enlargement at  $5\frac{1}{2}$  mills. The reduction made in the expenses by the enlargement has already been noticed. The expense on the Erie canal in 1852, including wages, towing, depreciation of value of horses, office and personal expenses, and part cost of loading and unloading, is given at  $2\frac{1}{2}$  mills per ton per mile. Mr. Seymour, the late state engineer, estimated the whole cost at  $3\frac{1}{2}$  mills per ton per mile. The charges for transportation at that time, except late in the season, averaged  $6\frac{1}{2}$  mills per ton for freight going

east, and  $6\frac{1}{2}$  mills for that going west, not including state tolls.—Boats are commonly towed upon canals by horses, a single horse drawing at a speed of  $2\frac{1}{2}$  or 3 m. an hour a boat loaded with from 50 to 70 tons, as easily as a load of 15 to 18 cwt. upon a good road. Men are sometimes employed to tow boats in Holland, as they were in England, on the Thames and the Severn, till near the close of the last century. This is still the practice in China. Steam power is objectionable from the injury to the banks caused by the wave from the paddle-wheels. Propellers making less wash upon the banks are employed on canals that are sufficiently large to afford them convenient room. In 1890 boats were introduced upon the Glasgow and Paisley canal in Scotland, designed to run at the rate of 9 or 10 m. an hour. It was found that light boats made of thin boiler plate iron, their length being about 70 feet and their width less than 6 feet, could be drawn by 2 horses with a load of 70 or 100 passengers at this speed, without producing a wave that would harm the banks of the canal. As the boat attains this speed it overtakes the wave in front of it, and riding upon the top of it, the boat and the wave move onward together, smoothly and with comparatively light draught of the horses. These are changed every 4 m., and are put on several times in the course of the day. This method has been practised many years on the Birmingham canal. It has been tried in this country, but is not in use. In July, 1858, boats built to be propelled by steam made successful trial trips from Buffalo to Rochester. It has been generally supposed that rapid rates were unsuitable to canals, but experiments are now in progress in New York to test the contrary opinion.

CANALE, a small town in the Sardinian province of Albi, with important salt springs. Pop. 8,900.

CANALE, ANTONIO, commonly called CANALOTTO, and also IL TONINO, an Italian painter, born in Venice, Oct. 18, 1697, died there Aug. 20, 1768. His father was a scene painter, and educated him to the same profession. He resided for a time in Rome, about the year 1719, and there studied the remains of antiquity, began to apply the skill with the pencil, which he had acquired at Venice, in painting from nature, and gained the reputation of an accomplished artist in that branch. On his return to Venice, he painted numerous views of that city, reproducing with great accuracy its palaces, churches, and canals. The best of these was the view of the grand canal, which is now in the gallery of the Louvre. He spent 2 years in England, and painted while here an interior view of King's chapel, Cambridge. His works are found in all the galleries of Europe.

CANALE, NICOLÒ, a Venetian admiral, who flourished in the second half of the 16th century. In 1469 he was commander of the Venetian fleet at Negropont (the ancient Chalcis), and succeeded in seizing the Turkish town of Enos.

The cruelties perpetrated upon the inoffensive inhabitants created great indignation at Constantinople, and Mohammed II., with a view of resenting the outrages, besieged Negropont with a force of 120,000 men, and after a violent contest expelled the Venetians. Canale, to whom this defeat was attributed, was sentenced to death by the council of ten, but at the instance of Pope Paul II. and of other influential persons, his punishment was commuted to exile for life.

CANAMINA, a town in the kingdom of Dahomey, pop. 10,000. It is situated in a level and well-cultivated tract of country. The houses are scattered, and extend over a vast area. Among them is one set apart by the king for the use of white travellers.

CANANDAIGUA, the capital of Ontario co., N. Y., is a picturesque village, beautifully situated at the N. end of the lake of the same name, and on the line of the central railroad. From the upper part of the village the ground slopes gradually toward the shores of the lake, affording a magnificent view. The houses and other buildings are noted for their elegance. Many of the residences are surrounded by fine gardens and grounds ornamented with great taste. The N. Y. Central R. R., and the R. R. from Elmira to Niagara Falls pass through it. Pop. of the township in 1855, 6,480; of the village, 4,154.

CANANDAIGUA LAKE, noted for the beauty of its surrounding scenery, lies chiefly within the limits of Ontario co., N. Y., and is said to be 437 feet above Lake Ontario. Its waters abound in excellent fish, and are frozen over almost every winter. The Clyde, a tributary of Seneca river, is formed by the junction of Mud creek with the outlet of this lake. The lake is 15 m. long, and from  $\frac{3}{4}$  to 1  $\frac{1}{2}$  m. wide.

CANARIS, CONSTANTINE, one of the bravest leaders of the Greeks in their war of independence, born about 1790 in the island of Ipsara. At the outbreak of 1821 he was captain of a merchant vessel which made frequent passages to Odessa. Shortly after the barbarous devastation of the island of Scio by the Turks, he followed the fleet of the Greeks under Miaulis with 2 fire-ships, skilfully arranged, and manned by Ipsariotes and Hydriotes, to the harbor of that island (June, 1822), and succeeded in attaching them to the vessels of the Capudan Pasha and Capudan Bey, of which the former, lighted up at the time in celebration of the Ramadan, was blown up with thousands of men, and the latter scarcely escaped as a wreck. This deed, which revenged the massacres of Scio, was followed in the same year by a similar exploit in the harbor of Tenedos, which saved the Greek fleet from destruction, and filled the Turks with terror. The honors with which he was received after this achievement could not fail to inspire him to further efforts, and he revenged the Turkish cruelties on his native island by a new victory at Samos, near the promontory of Mycale, whose ancient glory he thus renewed (Aug. 17, 1824). This saved

the island of Samos from the fate of Scio and Ipsara. But his bold attempt to burn the Turkish fleet in the harbor of Alexandria, where it lay ready to take the troops of Mehemet Ali to the Morea, was baffled by contrary winds at the moment of execution (Aug. 4, 1825). Honored by the command of the frigate Hellas sent from America, and by the education of his son in Paris, he was elected in 1827 as the representative of Ipsara in the national congress at Ermi-one, or Oastri, and in 1828 was appointed by Oapo d'Istria commander of Monembasia, and subsequently of a naval squadron. After the assassination of Oapo d'Istria (1831), he retired to Syra. Under King Otho he served as pliarch, or captain of the first rank, and in 1848-'49 as minister of the navy, and was commander of the order of the Saviour. Again made minister in May, 1854, he resigned in May, 1855. In the spring of 1858, disgusted with the conduct of the government, he sent back to it all his orders and commissions, resolved henceforth to be only a private citizen. The heroism which distinguishes the revolutionary life of Canaris is equalled by the modesty which characterizes his whole career; even a certain timidity in conversation is mentioned as a feature of the man whom the Mussulmans feared more than the tempests and cliffs of the *Ægean*.

CANARY BIRD (*Fringilla Canaria*, Swains), a well-known member of the finch family, a native of the Canary islands, but naturalized in Europe and the United States. The native bird differs materially from the variety commonly seen in cages; the adult male has a much darker bill; the general color of the plumage varies from a greenish yellow on the front, chin, throat, and breast, to a golden yellow on the belly; the sides, thighs, and under tail coverts are dirty white; the top of the head, back, and upper tail coverts, brown ash, with a longitudinal brown spot down each feather; the wing feathers, brown black, with pale brown edges, margined with white near the back. The color of the female is more dingy and indistinct, having much less greenish yellow about it. In size it is less than the domesticated species. It builds in thick bushes and trees, pairs in February, and lays from 4 to 6 pale blue eggs, hatching 5 or 6 broods in a season. It is very familiar, and frequents the gardens of Madeira, where its song is highly prized. The domesticated species is about 5  $\frac{1}{4}$  inches long, with a pale bill, and the whole plumage of a rich yellow color, with the edge of the wing yellowish-white; the colors of the female are less bright. The original stock is said to have been imported from the Canary islands about the 14th century; in Europe it has been mixed with the aberdevine (*carduelis spinus*), the venturon (*fringilla citrinella*), the serin (*fringilla serinus*), the goldfinch (*carduelis communis*), and various other birds, producing hybrids, fertile and sterile, of great varieties of color and characters. There are about 50 varieties of the canary, which will preserve their characters distinct if proper-



ly paired. They are bred in immense numbers on the continent of Europe, and many are imported into the United States from Germany. The 2 varieties most prized by amateurs are the jonquil and the mealy, which combine the greatest beauty of color with excellence in song; the latter have a bright orange cap, this color pervading the whole plumage, except on the wings and tail, which are deep black; the former have the neck, back, and wings waved and mottled with purplish gray tints. The German birds have often considerable green in their plumage, bearing a stronger resemblance to the wild bird than do the higher prized varieties. The most mottled varieties may be as good singers as those of the purest colors. The song of the canary is familiar to every one. With less power, compass, and variety than the nightingale, it has greater powers of imitation, a better ear, and a better memory; it sings at all seasons, in the dullest weather, and is equally welcomed in the palace and the hut. It becomes very tame, and is capable of attachment to man; it is easily educated to perform tricks at public exhibitions, many of which are quite astonishing. Their dispositions are as various as their colors. This climate is too severe for the outdoor naturalization of the canary, but its indoor rearing in cages is very common. They begin to pair about the middle of February, and will make a very neat nest if the proper materials are supplied to them; they will also lay in nests artificially prepared. The time of incubation is 18 or 14 days; the number of eggs is usually 6. The young partake of the physical characters of the parents, whether gay or mottled. Their favorite food is canary seed, to which a little rape and hemp seed may be occasionally added; they should have light, fresh air, plenty of water to drink and bathe in, and free access to sand or gravel; a sprig of chickweed or a leaf of lettuce will be highly relished by them. The canary will thrive very well on this food; when breeding, the yolk of a hard-boiled egg should be given them. Their diseases are due principally to improper or too much food; cleanliness and attention to sifting their seed will generally protect them from parasitic insects.

**CANARY GRASS** (*phalaris Canariensis*), an annual grass native to the Canary islands, cultivated for its seeds, with which tame birds, especially canaries, are fed. It is grown on the isle of Thanet, in the county of Kent, England, also in parts of Italy, France, and Switzerland. It has a stalk 1 to 8 feet high, topped by an oval, close-grained panicle. It requires a good soil and an open country.

**CANARY ISLANDS**, or **CANARIES** (Sp. *Islas Canarias*), a Spanish colony in the Atlantic ocean, off the N. W. coast of Africa, between lat. 27° and 30° N., and long. 18° and 19° W., comprising a group of islands of which the principal are Teneriffe, Grand Canary, Palma, Lanzarote, Fuerteventura, Gomera, and Ferro, with

a total area of about 8,400 sq. m., and a population of about 260,000. The islands are volcanic, rocky, and mountainous. The principal mountain is the peak of Teneriffe, a celebrated volcano, 12,182 feet high. The water courses which traverse the islands are sometimes swelled to torrents, and at others dry. Allowances made for frequent dryness, the soil, which is extremely fertile, yields abundant harvests, and the climate, although at times excessively hot, and exposed to severe changes and to a pernicious hot wind from the African continent, is, on the whole, salubrious. The vegetation of both the tropical and temperate zones flourishes here in great luxuriance, and has been described at length by Alexander von Humboldt, and by Leopold von Buch. Horses and cattle are scarce, but other kinds of domestic animals abound; only a few, however, are indigenous. The reptiles are limited to a small scorpion, a *scelopendra*, and the frog. Among the insects is only to be mentioned a species of troublesome gnat or mosquito. Among the birds are the African vulture, the falcon, buzzard, sparrowhawk, kite, 2 species of owl, 8 of sea-mew, the goldfinch, the quail, wren, magpie, and a rich list of other birds, including the famous Canary bird, which derives its name from the islands. (See CANARY BIRD.) The only fresh-water fish is the eel. Marine fishes are scarce, but whales and seals are occasionally seen. The products comprise various kinds of grain, canary seed, potatoes, exquisite fruit, silk and cotton, some olive oil, tobacco, rosin, wood, hides, &c., and among those most extensively exported are cochineal, wine, barilla, orohilla, and wood. The exports of wine and brandy were formerly considerable; the produce of wine averaged about 40,000 pipes until 1853, when the whole crop was nearly destroyed by a grape disease. The exports have since materially fallen off in wine and brandy, but have greatly increased in cochineal, lands formerly occupied by vines and grain being now devoted to the production of this insect, and the exports having risen from about 1,000 lbs. in 1838, to 800,000 lbs. in 1849, and to 1,500,000 lbs. in 1856. The produce of sugar, formerly of great importance, has fallen before the competition of the American and West Indian trade, and hardly averages more than a value of \$100,000 annually. Some raw silk is manufactured on the spot into silks and ribbons; coarse linen and woollen stuffs are made for home consumption; the leaves of the date palm are made into hats and baskets; but the bulk of manufactured goods is imported from abroad. A fishery on the African coast engages from 40 to 50 vessels, and a great number of persons; the principal fish taken is bream, which is salted and largely consumed in the islands. The foreign trade is chiefly with Great Britain, the United States, Hamburg, France, and the Spanish West Indies. The imports from the United States have increased from \$23,846 during the year ending June 30, 1856, to \$39,949 during the same period ending June 30, 1857;

and the exports to the United States have increased during the same respective periods from \$16,708 to \$44,065. The ports engaged in foreign trade are, Santa Cruz de Teneriffe, Orotava, and Las Palmas. They were made practically free in 1852, there being now only a nominal duty upon imported goods, with the exception of tobacco, which pays 10 cts., and cigars, which pay 30 cts. per pound. The entrances of foreign vessels average about 300 annually.—The Canaries are supposed to be the islands which are mentioned by the elder Pliny, and also by Plutarch and Ptolemy, as the *Fortunate islands*. In 1834 they were re-discovered by a vessel which had been driven thither by stress of weather; and after various abortive expeditions, the first effectual attempt at conquering them was made, with the assistance of Spain, by Jean de Bethencourt, a gentleman of Normandy, in the beginning of the 15th century. After various conflicts, caused by the subsequent governors of the islands, by the resistance of the natives, and by the claims set up by Portugal, they passed eventually into the possession of Spain. They are now under the same form of administration as the other provinces of Spain, are represented in the cortes, contain 2 bishoprics, and the governor-general resides at Santa Cruz de Teneriffe. The inhabitants are chiefly Spaniards (slightly darker than those of the mother country), though some claim descent from the aborigines, named *Guanches*, who, however, are extinct. The prevailing religion is the Roman Catholic; Spanish is the only language in use. Two newspapers are published at Santa Cruz, and one at Las Palmas.

**CANASTRA**, a mountain range of Brasil, commences at the S. termination of the Serra Matto Gordo, on the boundary between the provinces of Goyas and Minas Geraes, and stretches away toward the S. E.

**CANCALE**, a seaport town of France, department of Ille et Vilaine, situated on the W. end of St. Michael's bay, 227 m. W. N. W. of Paris. The harbor is enclosed by a chain of rocks, named *Rochers de Cancale*, where are found those renowned oysters, of which enormous quantities are sent to Paris and elsewhere. A considerable fish trade is also carried on here. The town is divided into 2 parts, one of which is called *La Houle de Cancale*, and the other *Le Bourg*. *La Houle* may be considered as the port of Cancale, and possessed, in 1854, 360 vessels of about 2,000 tons. The entrances of coaling vessels in that year were 71, and the clearances 75. Pop. about 6,000.

**CANCAN**, a species of irregular French contredance, in which many voluptuous movements are introduced, and which originated in 1823 at the *baie de la Chauvière*, with the students and the grisettes of Paris.

**CANOEILLI**, windows made of cross bars and glass disposed lattice-wise. The term is also used for rails and balusters, and for the net-work in the inside of hollow bones.

**CANCER** (a crab), the 4th sign in the zodiac (designated by the mark ♋), into which the sun enters at the summer solstice in June; also, a constellation of stars formerly occupying the sign Cancer (see **AQUARIUS**), easily recognized by 2 stars of the third magnitude, and a faint cluster nearly midway between them.—The **TROPIC OF CANCER** is the northern boundary of the torrid zone, a parallel of latitude where the sun is vertical at noon only one day in the year, viz.: the day he enters Cancer.

**CANCER**, a malignant disease to which nearly every part of the human body is liable, either primarily or secondarily. It most commonly, however, originates in some one of the glands or secreting organs. Thus the female breast, the womb, the testes, the ovaria, and the thyroid gland are the most common seats of the disease. It however not unfrequently first shows itself in the skin and the various mucous membranes. The face, the lips, the mouth, the windpipe, the gullet, the stomach, and the intestines are often primarily affected. Other organs and membranes, when diseased, are supposed to have been attacked subsequently to the appearance of cancer in some other parts of the body. Medical writers generally divide cancer into 2 stages, scirrhus and carcinoma, although these 2 primary divisions are often subdivided into a number of subordinate ones. There are some late authors whose microscopical investigations have led them to infer, that the cancer which appears ordinarily on the skin and superficial membranes, differs from the disease as it shows itself in other parts. They have accordingly distinguished this variety by the name of epithelial cancer. Scirrhus, derived from the Greek word signifying hard, is the term applied to cancer as it first exhibits itself. In this early state it appears as a hard and irregular tumor, with more or less dark discoloration of the skin. When cut into, it is found to be of a grayish tint, and composed of 2 substances; one of a hard fibrous nature, and the other of a soft material, somewhat like cream in consistence and color. The peculiar structure of these diseased products may be detected ordinarily by the eye alone, but with more certainty by the aid of the microscope, which to the experienced reveals at once the existence of nucleated cells, such as are found in primary tissues in the course of organization. The time during which cancer may remain in the state of scirrhus is variable, and depends upon the activity of the disease or the constitution of the patient. It sometimes remains stationary for many years, but finally, if allowed to have its course, assumes the secondary stage of softening called carcinoma. It must be understood, however, that frequently from the very beginning cancer assumes the soft state, and under great varieties of appearance. The skin covering an ordinary scirrhus tumor having been destroyed, and the diseased mass softened by the process of ulceration, the cancer then becomes an open sore. The pro-

gress from this time is very rapid. The malignant degeneration extends quickly to the neighboring parts; the ulcer increases, discharging constantly a morbid matter that destroys the surrounding tissue and is absorbed into the system; the constitution becomes generally affected, and death finally ensues from exhaustion, or such vitiation of the whole body as to render it unable to perform the functions of life. The pain from the earliest period is sharp, but at first intermitting; in the course of the disease, however, the agony becomes extreme, and death is welcomed by the sufferer as a relief. Cancer is now no longer, as in former times, supposed to be purely a local disease. It is generally considered a constitutional affection, depending upon a diseased state of the blood, with a tendency to reveal itself under some exciting cause, as a blow, for example, in any part of the body especially liable to cancer. All external injuries more or less violent, any continued pressure or irritation, excess in the use of spirituous drinks, depression of the mind, and especially a poor diet, are supposed to be favorable to the development of the disease. Cancer is undoubtedly an hereditary affection, as it may be constantly traced through various members of the same family, and a succession of generations of a common origin. It is a disease that seldom develops itself before the age of 30, although it is occasionally seen even in infants. That form of cancer called *fungus hamatodes*, particularly where the eye is its seat, is by no means uncommon even in the youngest children. Women, and particularly the unmarried, are more liable to the disease than men.—In regard to the treatment of cancer, notwithstanding the great variety of means which have been and are still used, the general opinion of the most scientific physicians and surgeons is that it is incurable. It is still a *quæstio vacata* whether it is proper to remove cancer by a surgical operation. Some contend that the fatal result is hastened by excision, while others argue that much relief is thus obtained without any such effect. All, however, agree in denouncing the use of the knife when the general system is so far affected as to show constitutional symptoms. Those who believe in that peculiar form, called by them the epithelial cancer, a disease which shows itself generally on the skin, and especially on the face and lips, are of opinion that surgical operation is particularly beneficial as affording a means, in this form of the ailment, of frequent radical cure. For a long time the old mode of operation by means of caustic gave way to the use of the knife, but just now there seems a disposition to return to the former mode of treatment. The supposed success of an American of the name of Fell, now practising in London, and who makes use of a caustic compound of chloride of zinc and our native blood-root, has led the profession to reconsider the efficacy of that method of cure. Dr. Fell has introduced the novelty of making, in the neighboring parts of the cancer, various incisions, into

the depths of which he inserts pieces of lint smeared with the caustic, which thus applied is supposed to act with greater rapidity and power. Though the physician and surgeon have little faith in the efficacy of any means of cure, they are undoubtedly able to do much toward mitigating the sufferings of the patient, and therefore may be consulted with advantage by those afflicted with this terribly malignant disease.

CANCERIN, GZORGE, count, a Russian statesman, born Dec. 8, 1774, at Hansau in Germany, of an obscure family of Jewish descent, died Sept. 22, 1845, in St. Petersburg, while minister of finances, member of the imperial council, senator of the empire, in fact at the height of honors and dignities. He received his education in Germany, and while a student at Göttingen published a treatise on mining interests which he dedicated to Catharine II. of Russia. To that country he soon followed his father, who had entered the Russian civil service a few years before, and was director of the salt works in Staraisa-Russa, in the government of Novgorod. Cancrin began his career under his father, and then passed into the department of the interior, to which the salt works belonged. Laborious, well informed, and endowed with a spirit of order and a certain organizing capacity, he published a pamphlet upon the commissariat, a branch of the administration at that time notorious for its disorder and malversation. This publication resulted in Cancrin's transfer from the ministry of the interior to that of war, and to the commissariat. At the beginning of the war of 1812, Barclay de Tolly, commander of the western Russian army, offered him the place of commissary-general. In that capacity, Cancrin introduced some beneficent reforms, beside publishing a small treatise on "Military Economy in Peace and War." In 1818 he was made commissary-general of the whole Russian force, and as such participated in the campaigns of 1818-'14, and accompanied the emperor Alexander to Paris. In 1815 he negotiated with the French government in relation to the expenses of the Russian corps which, after the battle of Waterloo, was for several years to occupy France. Cancrin's integrity in this negotiation being questioned by his enemies, he resigned his active duties as commissary, but remained in service without a special department. During this time of leisure, he published a work on political economy under the title of "The Wealth of Nations," in imitation of Adam Smith and Storch, basing prosperity on the development of domestic industry, but without any original ideas. Alexander left the empire to his successor in great disorder, the finances especially, the treasury empty, trade and industry prostrated. The emperor Nicholas made Cancrin his minister of finance. The first business was to fill the treasury. In Russia proper, the government alone has the exclusive right of selling spirituous liquors by wholesale and retail. Hitherto the government

had administered this branch of revenue. Cancrin now transferred the monopoly to private individuals, called *otbuptchiki*. But in Lithuania, in the Baltic provinces, and in others reconquered from ancient Poland, the nobility or landowners enjoy the right of selling spirits; and as a contraband trade would early have been carried into the interior injurious to the interests of governmental farmers, by Cancrin's influence a law was enacted, punishing with exile to Siberia for life every contraband dealer in spirits, and rendering the whole rural commune responsible for any violation of the rights of the monopolists perpetrated by one of its members. By this administrative combination, many individuals acquired wealth as farmers of the revenue, but administrative corruption became deeply rooted, and many poor peasants were sent to Siberia. This darker side of Cancrin's financial activity was atoned for, in the opinion of later Russian statesmen, by his introducing a strong prohibitive system, by which an impulse was given to the development of home industry. Although the tariff prevailing during Cancrin's administration was deficient in many respects—for instance, imposing export duties even on raw products such as cereals, hemp, &c.—still he is believed to have laid the principal foundation of the industrial progress which Russia has since accomplished. He was created a count by Nicholas, who treated him with special deference, maintaining him in office even when his advanced age and broken health disabled him from directing his department with his previous steadiness, and when maladministration and corruption were rampant there. Cancrin's personal probity is scarcely to be questioned, though he was rather avaricious, and left to his family a very considerable fortune acquired principally by the munificence of his imperial master.

CANDACE, an Ethiopian queen who invaded Egypt 22 B. C., but was defeated by Petronius, the Roman governor of that country. In the "Acts of the Apostles" mention is made of a eunuch who was the treasurer of Candace, queen of the Ethiopians. The name seems to have been common to all the female sovereigns of Ethiopia.

CANDAHAR, or KANDAHAR, an extensive province of Afghanistan, consisting partly of mountains and partly of arid plains, bounded N. by the country of Balkh, S. by Beloochistan, E. by Sinde and Beloochistan, and W. by a desert which divides it from the Persian province of Seistan. Although the general character of the country is barren, there are some fertile regions, especially along the banks of the rivers, where wheat, barley, pulse, melons, tobacco, and other plants and fruits are produced. Among the wild animals are wolves, hyenas, bears, leopards, wild asses, &c., and among the tame animals are camels, mules, and most of the domestic animals of Europe. A considerable transit trade is carried on in Candahar,

the road between India and Persia passing through the country. There are in Candahar Hindoos (who are the principal bankers and shopkeepers), Persians, Belooches, and Tadjiks, beside the Dooranees, which are the most important tribe of the Afghan country. Candahar formed part of Persia, was for some time subjugated by the Mogul sovereigns of Delhi, and was again annexed to Persia by Nadir Shah. On the death of this conqueror it became a province of eastern Afghanistan. The inhabitants are mostly Mohanmedans of the Soonnee sect, and sympathized with the Turks during the late eastern war. Pop. 750,000.—A city of Afghanistan, lat. 32° 37' N., long. 66° 20' E. It is fortified, and a place of military and political importance. Formerly it was the capital of the country, but in 1774 the seat of sovereignty was transferred to Cabool. The city is well laid out, the streets being at right angles, and the 4 principal streets, which are very wide, meeting at a circular place in the centre of the city. The town is situated near the Urghundaub, and small channels of river water run through the main streets. It was built by Ahmed Shah, one of the ablest Afghan princes, in 1754. His tomb is in the city. It is a place of considerable trade. In 1842 the town was occupied by the British. Pop. variously estimated from 60,000 to 100,000.

CANDEISH, KHANDESH, or CANDESH, a collectorate of the presidency of Bombay, in British India, bounded on the N. by the territory of Holkar, on the E. and S. by the Nizam's dominions, and on the W. by Guzerat. Pop. in 1851, 778,112. In the 15th century Candesh was governed by independent sovereigns; toward the close of the 16th century it was annexed to the great Mogul empire. On the overthrow of the peishwa in 1818, it became a British possession.

CANDELABRUM, a stand or support for a lamp. The candelabra of the ancients, generally made of bronze or marble, and inlaid with precious metals, were of superior beauty, both in design and workmanship. Sometimes the stand was a human figure, holding in one hand the oil-cup; sometimes the stem is represented as throwing out buds, as the candelabrum which, after the sacking of Thebes, was dedicated by Alexander at Cymæ in honor of Apollo, and afterward brought to Apollo's temple on the Palatine at Rome; others had a sliding shaft like that of a music stand, by which the light might be raised or lowered at pleasure. Candelabra were also used in temples, on account of their resemblance to the holy torches employed in religious festivals and ceremonies. Two exquisite candelabra, carved in marble, found in the villa of Hadrian at Tivoli, were presented to the university of Oxford by Sir Roger Newdigate, and are preserved in the Radcliffe library. In the Townley collection of the British museum are about 17 candelabra, including one of marble, 7 feet high, with a representation of a large flame on the top, several

of bronze, one of which has a spike to receive a clay lamp, with a hole in the centre, and various other exquisite specimens. The extraordinary size of the candelabra used in the palaces and temples of the ancients may be inferred from the specimens in the Louvre, in the Munich glyptotheca, and in the extensive collections of the Vatican and of other Italian museums, of which the most remarkable is that of the Museo Etrusco Gregoriano, with 43 different specimens. In the Museo Borbonico are several specimens of bronze candelabra found at Herculaneum and Pompeii, which are mere reeds or straight sticks, and give a correct idea of the lamp-stands of the ancients in their original and simple form. Homer relates that the palace of Alcinoüs, king of the Phæaciens, was illuminated by lamps supported by golden candelabra, which represented youths standing in an elevated position upon altars. Cicero speaks admiringly of a candelabrum ornamented with precious stones, presented by one of the sons of Antiochus to the temple of Jupiter Capitolinus at Rome. The most gigantic candelabrum of antiquity was the celebrated Pharos at the harbor of Alexandria. The artists of Tarentum were renowned for their admirable design and execution of the shafts, while the candelabrum-makers of Ægina eclipsed all others in the exquisite workmanship of the ornamental parts. Those of modern times are simply chandeliers with several branches, made of crystal, porcelain, alabaster, &c., and supported by a metal stand, generally of bronze. Yet here and there a genuine candelabrum, after the model of antiquity, is made for the use of churches. The candelabrum of sandstone, 80 feet high, erected Sept. 8, 1811, in Thüringen, upon the site where, in all probability, the first church established by St. Boniface stood, approaches more than any other modern work of the kind to the candelabra of antiquity.

CANDI, CANDY, or KANDY (Cingalese, *Ma-la Nuwara*, great city), a town of the island of Ceylon, and formerly capital of the kingdom; pop. 7,000. It stands on the shore of an artificial lake, in an amphitheatre of beautifully wooded hills, near the centre of the island, and since the year 1815 has been greatly improved. The residence of the British governor here is the finest edifice in Ceylon; and beside this the town contains the residence of the major-general, the king's palace, a Buddhist temple containing the tooth of Buddha, several churches of various denominations, and a number of other notable buildings. In the centre of the lake is a military magazine, and just outside the town, in a royal cemetery, repose the remains of a long line of native kings and heroes. The natives are engaged to some extent in making bricks and tiles, elephants being employed to tread out the clay. The lake of Candi, which was formed by the late king, and is 1,680 feet above the sea, is a beautiful sheet of water, about  $1\frac{1}{2}$  m. in length, and from 100 to 500 yards in breadth.

CANDIA, or *Candia* (anc. *Crota*; Turk. *Kiridi*), an island forming the southern limit of the Grecian archipelago, and lying between the Morea on the N. W., Asia Minor on the N. E., and Africa on the S., belonging since 1669 to Turkey, and constituting the present Turkish eyalet of Kiridi. It extends from E. to W. about 160 m., across three-fourths of the breadth of the Ægean, which is entered on the western side of the island by the channel or strait of Cerigotto, and on the eastern by the strait of Scarpanto. It has an average breadth of 25 m., and an area of more than 4,000 sq. m. Throughout its entire length, it is nearly centrally ridged by a chain of mountains, which send off to the S. spurs terminating in bluffs, rendering the southern coast inhospitable; while to the N. the spurs gradually slope to a low coast, forming several tolerable harbors, of which the 8 principal are Canea, Kisamos, and Suda, the last mentioned being the best the island affords. All these harbors, however, especially that of Canea, which was once excellent, are now, through the Turkish neglect of the commercial interests of the island, and the oppressive taxation of exports, being rapidly filled with sand, so that the present port of Canea affords approach only to vessels drawing less than 8 feet of water, and all vessels of greater draught are obliged to lie at anchor under the lee of a small island, at the north of the port, 6 m. distant. The mountainous chain of Candia is naturally divided into 3 parts: the eastern, or ancient Dictæan mountains, now called Siti; the western, or ancient Leuci mountains, so called from their whiteness (being covered by snow 8 or 9 months in the year), now known as the Sphakiotæ mountains; and the central chain, anciently called Ida, whose middle and principal peak is now known as the Psilorati, rising to a height of 7,674 feet above sea level. The coasts of the island are very irregular, being deeply indented by the spurs of the mountain chain. The mountains, being of calcareous formation, abound in caverns and grottoes, some of which are highly picturesque. Gypsum, lime, and slate are found to some extent. It was in this island that the famous labyrinth of the fabled Minotaur was situated, which was probably one of these numerous grottoes, rendered more intricate by the art of Dædalus, under the directions of Minos. Some travellers have placed this labyrinth in the neighborhood of Gortyna. Cape Matala, the southern point of the island, is also the most southern land of Europe. Candia can scarcely be said to have any rivers, the water-shed of the mountains not exceeding 15 m. in breadth either way to the sea. In the rainy season of the autumn and winter, torrents are precipitated from the mountains, but they dry up in the summer, and the only resources for the irrigation of the land are the small springs which abound among the hills. The island is nevertheless tolerably fertile, and were the restrictions of the Porte on the commerce

of the island removed, the soil would yield large exports and profits to the agriculturist. As it is, the exports are chiefly silk, olive oil, wine, oranges, lemons, and soap. The annual average exports of silk amount to about 80,000 lbs., and of soap to about 10,000 cwt.; the value of the total exports increased from \$1,200,000 in 1842, to \$3,300,000 in 1856. Candia owns about 600 vessels; tonnage about 35,000. The cereal produce of the island is small, and the inhabitants are obliged to import large quantities of grain from Egypt and Barca. The wines of Candia have been famous for many centuries, especially the Malmsey and Arcadian. The Malvasi or Malmsey raisins are also well known. Cotton and tobacco are raised in small quantities, and the exports of coal (of which there are 2 principal basins, opened in 1822, one upon the N. coast, near Retimo, and the other on the S. W., near Sphakia) might be considerable, under better commercial regulations. The land affords good pasturage among the hills of the mountain chain, and large numbers of goats and sheep are raised; the former distinguished for their milk, and the latter for their excellent mutton. Cattle are neglected, as they are only used for draft in the agriculture of the island, there being a prejudice against the milk of cows. The climate is mild and generally healthy, with the exception of those portions of the valleys not readily drained, which in the summer months are extremely unhealthy. Leprosy is the only endemic of Candia. The thermometer ranges from 60° to 70° F., in extreme instances rising to 88°. The N. wind (called by the natives *ebnaf*) tempests the summer heat. The peaks of the mountains, especially in the western and central part of the chain, are covered with snow for three-fourths of the year. Among the numerous birds of beautiful plumage and song, inhabiting Candia, is to be specially mentioned the *kajabulbul*, which is so much esteemed in Turkey as to command a price of \$100. The trees and shrubs of the island are many of them aromatic.—Candia was anciently settled by colonies, probably from the Phœnicians, Pelasgians, and Dorians, and, according to history or fable, was first governed by Minos, whose laws are famous in Greek literature. After him came a line of chiefs who were probably succeeded by a somewhat republican form of government, which continued until the Roman conquest of the island (87 B. C.) In the partition of the empire, Candia fell to the East, and was held until A. D. 828, when it was taken by the Saracens, who retained its possession till the 10th century, when it fell into the hands of the Genoese. From them it passed by gift to Boniface, marquis of Montferrat, who sold it to the Venetians in 1204. The Venetians retained its possession for more than 4 centuries, and this is the golden age of Candia. The Turks finally wrested it from the Venetians in 1669, after a bloody struggle of 24 years. At the command of the pope, France,

Malta, Savoy, and Italy sent auxiliaries against the Turkish infidels, but all to no avail. The fortifications of Candia yielded to the bombardment of the Mussulmans and the island became a possession of the Porte. In 1821, and again in 1841, a popular insurrection only had the effect to increase the weight of the Turkish yoke, especially in the restrictions on commerce in 1842. In 1830 it was given by the allied powers to the viceroy of Egypt as indemnity for the loss of his fleet at Navarino, &c. In 1840 it was restored to the Ottoman Porte. Its present political division is into 3 sanjaks: that of Candia on the E., of Canea on the W., and Retimo in the middle. At Candia is a pasha of 8 tails, while the governors of the other 2 pashalics are pashas of 2 tails. The Christian division of the island was, until 1830, into 12 bishoprics of the Greek church, but now reduced to 8, of which the bishopric of Gortyna is the principal, and whose incumbent, appointed by the patriarchate of Constantinople, takes the title of archbishop. His dignities are the triple crown, the right to make his autograph in red ink, and to ride on horseback into Candia. In ancient times, the island was very populous; some writers represent it to have had a hundred cities; but its population is now much diminished, especially since 1821, and comprises not above 200,000. The inhabitants are in a very rude state, both as to education and the arts and practices of social life. The majority of them are Greek Christians. Nationally considered, they are made up of Turks and native Greeks. In the S. W. part of the island, among the mountains, is an aboriginal tribe called the Sphakiotas, who infect the country as robbers, and have never been completely subdued by their Turkish masters. There is also a Mohammedan settlement of pirates, formed by the Abiadotes, which is situated S. of Mt. Ida. The inhabitants of Candia are remarkable for agility, swiftness, and activity, and at the same time for daring, vindictiveness, and venality.—An insurrection broke out on the island in the early part of 1858. The Turkish government despatched 2 commissioners, to confer with the insurgents, who protested their loyalty to the sultan, but asked for the redress of their grievances. The government issued a proclamation, dated June 7, 1858, in which many of their requests are granted, and which seems to have restored peace. The governor of Candia, however, refused to assent to the terms of the proclamation, and he was recalled. Among the books to be consulted on ancient Crete and modern Candia, must be mentioned Höck's *Kreta* (Göttingen, 1828); Sieber's *Reise nach der Insel Kreta* (Leipzig, 1823); Pashley's "Travels in Crete" (2 vols. 8vo, Lond. 1837); Churmuzin's *Κρηνα* (Athens, 1842).—CANDIA (Romaic, *Megalo Kastiron*), the capital of the above-described island, the seat of the governor and of the Greek archbishop, contains several places of worship and Capuchin convents. Among the mosques

is one called after St. Catharine. Pop. 12,000, of whom 9,000 are Mohammedans, and the rest Greeks, Jews, and Armenians.

**CANDIAC**, **JEAN LOUIS PHILIPPE ÉLISABETH MONTCAIM DE**, a precocious French child, a brother of the marquis de Montcaim, born at the château de Candiac (Gard), Nov. 7, 1719, died in Paris Oct. 8, 1726. The child possessed remarkable powers of memory, although of a purely mechanical order, and is said to have been able to read French and Latin at the age of 3, and Greek and Hebrew at 6, and to have acquired some knowledge of arithmetic, heraldry, geography, and history. He died from droopy of the brain.

**CANDIDO**, **Pieter**, a Flemish painter and sculptor, who adopted this name, while his real name was Peter de Witte, born in 1541 at Bruges, died in 1628 at Munich. His principal paintings are of a religious character, as the "Annunciation," "Last Supper," "Christ with the Disciples at Emmaus," and "Holy Women at the Tomb of the Saviour." His most celebrated piece of statuary is the mausoleum of the emperor Louis IV., at Munich.

**CANDLE**, a small cylindrical body of tallow, wax, spermaceti, or other fatty substance, formed on a loosely twisted wick, used for a portable light. Although in our translation of the ancient Scriptures we find occasional mention of candlesticks, it appears that these were really lamps for burning olive oil, and not the supports for what we now call candles. Nor did the ancient Greeks and Romans possess any nearer approach to these useful inventions than the rude torches prepared by dipping strips of papyrus or rushes into pitch, and coating them with wax. The early Christians, driven by persecution into caves and catacombs, experienced the want of artificial light, and the first use of modern candles is generally referred to their times. It is stated by Eusebius and others that, in the early part of the 4th century, the emperor Constantine caused the whole city of Constantinople to be illuminated on Easter eve with lamps and wax candles. In the middle ages, according to Fosbroke, this kind of candle was in use, some of them being of 50 lbs. weight, and containing a twisted tow wick. The tallow prepared from the fat of animals afterward came to be used for the manufacture of candles, and at a still later period the similar product, called spermaceti, of the fluid fat of the whale. The vegetable kingdom, too, has been largely drawn upon to furnish for its oils, as those of the palm especially, and of the cocoa-nut, a solid material for this same use. The berries also of the cerifera, myrica, latifolia, and angustifolia, afford a waxy product applicable to the same purpose. The mineral kingdom, at last, has been made to yield from the bituminous coals, in the substance paraffine, another excellent material for candles. Thus nature has provided the most abundant and varied means, by which man may supply himself, in the darkness of night and in the depths of

mines, a substitute for the light of the sun.—Using the crudest animal fats, prepared in the simplest manner by melting and then skimming off the membranous portions which float upon the surface, common dipped candles have long been made by introducing wicks of cotton yarn into the warm semi-fluid tallow, and when they have become saturated, taking them out and suspending them by one end till the tallow cools; they are then dipped again, and again cooled, and so by each dipping accumulate more tallow, till they attain the required size. A mixture of mutton suet and beef fat is preferred to either alone, the former giving the desired hardness, and the latter the light, which it affords by reason of its greater proportion of oily matter. Instead of the old-fashioned method of dipping by hand, a simply contrived machine has been used for this purpose in Edinburgh, consisting of an upright revolving post, which carries 13 horizontal arms, at the end of each of which is attached a frame of six rods; from each of these hang 18 wicks, making in all 1,296. As the post is turned round, each arm comes in succession over the reservoir of tallow. The frame upon it is arranged, so that the wicks can be let down into the tallow. Thus one set after another receives an application of tallow, and is cooled as it revolves around, before its turn comes for another dip. When the weather is not very warm, the whole can be completed in about 2 hours. An improvement upon the dipping process was the substitution of cylindrical moulds of the size of a candle, made of tin or pewter, and a number of them arranged in a frame: moulds of glass have recently been substituted for those of metal. A wick is secured through the centre of each mould, the tallow is poured in, and the wick being stretched tight, they are set away to cool.—The most efficient and rapid method of separating the tallow or lard on a large scale from the tissues of the fat, is that patented by a partner of the firm of Wilson and Co. of Cincinnati, and generally adopted in the large candle works in the western states. A cylinder is constructed of boiler-plate iron, capable of bearing a pressure of more than 80 lbs. upon the square inch, and of the capacity of 1,200 or 1,500 gallons. It is set on one end upon a strong wooden frame, under which a large movable tub is placed. The cylinder is provided with a false bottom, perforated with holes for steam to pass, and through this and the real bottom is a large discharge hole, opening into the tub beneath and closed by a tight cover, which may be lifted off by a rod which passes out through the top of the cylinder; in this top is a man-hole and a safety valve. At different elevations up the side are cocks for drawing off the contents, and under the false bottom is a steam pipe leading from a steam boiler. The fats to be purified, and the bones and other portions of the carcass, are introduced through the man-hole to within 2½ feet of the top. The openings are then closed, the safety valve is set at the required pressure,

not less than 50 lbs., and the steam is let on. A try-cook close to the top is, during the process, continually made use of to indicate the contents of this portion. If fatty matters are ejected, there is too much steam, and some must be let off, together with the fatty substances mixed with it, into the tub below. The boiling is continued 12 to 15 hours, when the process is stopped and the steam let off. The water condensed from the steam subsides with the impurities of the fat, and after the pure tallow or lard is drawn off through the side of the vessel, it is let out at the bottom into the tub. This portion is said to produce an excellent fertilizer, almost equal to guano. A pressure greater than 60 or 70 lbs. is liable to cause decomposition of the animal matter, and defeat the production of the article desired.—In France and on the continent, a method of preparing tallow has been in use, which consists in decomposing the membranous tissue, which holds the oily matters in its cells, by boiling the fat with water acidulated with about  $\frac{1}{4}$  of its weight of sulphuric acid. The heat is applied by a jet of steam, which is thrown into the mixture, placed in wooden or leaden vessels, and kept constantly agitated for 2 hours, while the steam is introduced. The melted tallow collects upon the surface of the fluids by standing half an hour; it is then drawn off carefully, and the acid waters are afterward removed; the tallow is then put back, and, with  $\frac{1}{4}$  of its weight of water, is again heated by steam. After boiling 10 minutes, common salt amounting to 1 per cent. of the weight of the tallow is added, and the acid liquor is exactly neutralized by a solution of carbonate of potash, litmus paper being employed to indicate the neutrality of the solution. The tallow is then drawn off into a leaden evaporating vessel, and the water is separated by evaporation. By this process a very pure tallow is obtained, which requires no bleaching, and the quantity is considerably larger than is afforded by the old method. All danger of conflagration is avoided, and the neighborhood is relieved of those noxious effluvia which make the ordinary process an intolerable nuisance. Wax is often added to tallow, to give it greater hardness; and it is also, at times, introduced first into the moulds, and, by turning these round, made to line them entirely, leaving a smaller cylindrical cavity, into which the tallow is afterward poured; the candle is thus made to have its exterior part of wax.—The greatest improvements in the manufacture of tallow candles have resulted from the investigations of M. Chevreul, a French chemist, into the composition of animal and vegetable oils and fats. In 1813 he announced the discovery that most of these bodies consist of a number of compounds of different acids with one base, which he called glycerine. Combined with stearic acid, it formed the body stearine; with oleic acid, oleine; and with margaric acid, margarine. Oleic acid is a fluid oil, which, according to its proportion in combination with the

other solid acids, gives fluidity to the mass, and the tendency to run in the candles. Glycerine is a sweet sirupy substance, which adds little to the inflammability of the stearic and margaric acids with which it combines. By removing it from these acids, and then expressing from them the oleine, an excellent material for candles was obtained, hard and firm, and almost equal to those made of spermaceti. The alkalies, as potash, soda, and the alkaline earth lime, by their greater affinity for the acids, have the property of taking them up and leaving the glycerine in solution in the water first employed as a solvent for the alkali. Boiling the fats with pure lime water is the process called saponification, usually employed to effect this decomposition. The products left after drawing off the mother liquor are hard, soapy substances, combinations of margaric and stearic acids with lime. The soaps are next pulverized in a mill, or under metallic cylinders, to prepare them for the third process, which is their decomposition by diluted sulphuric acid. The cold mixture of fat and acids is left to stand sometimes several days, and is often stirred, that the lime may be entirely taken up by the sulphuric acid, and collect at the bottom in the form of the insoluble sulphate. The process may be hastened by heat, but to the prejudice of the purity of the products. The liquors drawn off are treated with a little more acid, if all the lime is not already removed, and are freed from all lime and sulphuric acid by thorough washing with water heated by steam. Left thus pure, the stearic and margaric acids are placed in pans of sheet-iron, in which they solidify into cakes of a yellow color and greasy appearance, both which are owing to some oleic acid mechanically mixed; this is removed by the powerful pressure to which the substance is subjected after being cut up into thin sheets and placed in bags of serge, or on mats, under a hydraulic press—first in a cold press, and next in one heated by steam. The latter removes the last portions of the oleic acid, and the greater part of the margaric acid also. The solid products usually constitute about 45 per cent. of the original fat. To purify them from any traces of sulphuric acid or lime, they are melted at a gentle heat, filtered, and then washed with dilute sulphuric acid, and afterward with pure water, the materials being kept hot by steam. The stearic acid, with a little margaric acid remaining with it, is now moulded into cakes, which are of a brilliant white color, and are ready to be made into candles by the usual process of moulding. Beef tallow may be made to yield 75 per cent. of stearic acid. Hog's lard, which is the tallow of the fat of hogs, varies in its yield of this acid according to the nature of the food of the animal, potatoes and grain tending to produce a solid fat, and the waste of distillers and similar food producing a fat more abounding in oleic acid. The best lard may yield 88 per cent. of solid stearic and margaric acids. The stearic candles manufactured in this country are quite inferior



to sperm candles; those made in England are described as being nearly equal to wax candles. Beside being prepared from animal fats, stearic acid is obtained in very large quantities from palm oil imported from Africa.—The largest candle manufactory in the world is that of Price's patent candle company, at Belmont, Vauxhall, and in this palm oil is the principal raw material employed; cocoa-nut oil is also imported and used in large quantities. Their factory at Belmont covers nearly 2 acres, and they have large branch works at Battersea, beside another factory on the Mersey, 4 m. above Birkenhead, which covers  $3\frac{1}{2}$  acres, and the walls of which are 20 feet high. The company employs about 2,000 persons. The amount of their capital stock is £700,000, of which £612,000 has been paid in. Shops for weavers, carpenters, tinmen, coopers, smiths, both iron and copper, are included in their great establishments; a steam printing machine also is provided for striking off labels; and though the business of these works is to manufacture the materials for light for others, their own premises are lighted with gas made expressly for their use. The principal differences between this process and that already described of the manufacture of stearic acid from tallow are first in bleaching the oil by exposing it to the air for 10 or 15 hours, in a layer only an inch or two thick, or by the use of bichromate of potash, or of some other bleaching material. On being melted by steam the oil is pumped into an acidifying vessel and heated to  $350^{\circ}$  F. Concentrated sulphuric acid is then added at the rate of 6 lbs. to the cwt. of oil. After additional heating and standing for 24 hours, it is put into large copper stills, and steam is passed through it, raised to the temperature of  $600^{\circ}$ . The oil is thus distilled, and is condensed free of most of its impurities. The product is next pressed to separate the oleic acid, and then becomes the beautiful material so much like spermaceti, from which the "Belmont sperm" and "Belmont wax" candles are manufactured. Composite candles are prepared from the distilled oil without its being pressed, and a mixture of stearic acid from the cocoa-nut oil; or this latter is used with stearic acid from tallow. These candles are made with plaited wicks, but they are of inferior quality to the candles prepared from the more thoroughly purified material.—The best candles in general use in this country are made of spermaceti. This substance, which is fluid in the whale, becomes when taken from the animal a white crystalline mass, composed of a liquid oil and a solid matter, which is the pure spermaceti. The oil is removed by first straining off so much as will pass through the bags used as filters. The sperm is next placed in hempen bags and subjected to machine pressure. After this the substance is reduced to powder, placed in other bags, and pressed much more powerfully than before. The spermaceti cakes are next melted and boiled with a soda ley, just sufficient in

quantity to form a soap with the oil in the sperm, without acting upon the solid matter. The soap floating upon the surface is skimmed off, and the sperm is set to crystallize in moulds; only, however, to be again ground, pressed, boiled with an alkaline ley, washed with water and moulded into blocks. From these blocks the candles are moulded as may be convenient. The moulds require to be heated to the temperature of the melted sperm, and slowly cooled after filling to prevent crystallization of the material, and the same precaution is required with stearic acid candles. The English are in the habit of adding about 8 per cent. of wax, which answers the same purpose of preventing the material from assuming the brittle, crystalline structure. They, and the French also, sometimes introduce coloring matters into the candles, in so small quantity as not to destroy their beautiful transparency, nor to affect the brilliancy of their light. Gamboge gives to them a yellow tint like wax; chromate of lead is used in France for this color, carmine for red, and Prussian blue for blue.—Wax candles are now little used compared with the other kinds. They are made by dipping, and by pouring the melted wax over the wicks. The shape is given during the process and at its close by rolling the candles between marble slabs. The candles are sometimes shaped by drawing them through a machine made for the purpose, as wire is drawn. There is a difficulty in moulding wax candles, owing to the substance adhering to the interior surface of the mould. Moulds of glass, however, have been successfully used, greater strength and security being given to them by incasing each one in a tube of gutta percha. By dipping them for an instant in hot water, the glass expands sufficiently to free the candle, which should be extracted as the mould comes out of the water. Wax requires smaller wicks than other candles, and they should be made of twisted Turkey cotton unbleached. The large wax candles used in Roman Catholic churches are made by rolling a sheet of wax placed upon a slab over the wick laid down upon it, and then giving shape to them by rolling in the usual way between marble slabs. Coloring matters similar to those used for coloring spermaceti candles may first be melted into the wax.—Paraffine candles are not yet prepared upon a large scale, but the practicability of obtaining from bituminous coals a large amount of oil from which this beautiful material for candles may be extracted, has been fully established. It is a true chemical compound of carbon and hydrogen, in those atomic proportions which appear most suitable for producing the best light. From the chemical talent which is applied to this subject on this as well as on the other side of the Atlantic, and the success already attained, there is every reason to hope for important results in the application of this substance to the manufacture of candles.—Little has yet been said of the different kinds of wicks

used for candles. They have been the subject of especial attention on the part of the manufacturers, and many improvements have been devised upon the ordinary loosely twisted thread of cotton. It is found that the more perfect the wick, and the better adapted it is to the particular kind of candle, the more brilliant is the light and the less the consumption of material. The coarse threads used for tallow candles raise the melted grease to very little height, and soon are covered with a burr of carbonaceous matter, which must be removed by frequent snuffing. Wicks of finer threads have a greater capillary action, and require less snuffing. So long as the threads of the wick remain in the body of the flame, they are protected from the action of the oxygen of the air, and the material is charred without being consumed. By turning the top of the wick to one side, so as to project from the flame, the light is no longer obscured by this burr, which soon disappears by its combining with oxygen. The plaited or braided wicks were contrived to effect this result, the plaits opening at the top and spreading out to the edge of the flame. A twist has been ingeniously given to wicks by winding them around a cylinder, and in this state saturating them with the melted material; after being drawn out and stretched in the candle, they still retain the tendency to assume the spiral form, and as the candle is consumed, the end of the wick coils out from the flame and is burned without obstructing the light. Wicks made of 2 parts twisted in opposite directions and wrapped around with a fine thread are also used. Other expedients have been devised to effect the same purpose; and ingenious and expensive machinery is in use in large candle factories for the manufacture of wicks alone. In the chemical preparation of stearic acid it is usually the case that some lime remains in the material; this gradually accumulates about the wick, diminishing its capillarity and obstructing the clear burning of the candle. The French chemists contrived a very ingenious method of getting rid of this by soaking the wicks in a solution of boracic acid. The borax they absorb, uniting with the lime and other impurities, forms a clear fusible bead on the top of the wick, which aids by its weight to bring this down out of the flame.—An outside polish is given to candles, sometimes in machines contrived for the purpose, and sometimes by rubbing them by hand with a suitable cloth.—The relative illuminating power of different kinds of candles and their proportionate value has been investigated with great care by several distinguished scientific men; but the subject admits of no general rules being established. The rate of consumption and intensity of light varies with the sizes of the candles, made alike in other respects, and those of different manufacturers, though apparently the same, vary in their properties. Common experience alone must determine the relative value of different kinds of candles, and those which in one

country are the most economical may in another prove the most expensive.—Immense quantities of candles are used in mines, and in Pittsburgh, Cincinnati, and other western cities they are largely manufactured of lard, hardened by mixture of wax, for the supply of the Lake Superior and other mining districts.

**CANDLEMAS**, the name by which the festival of the Purification, which the Roman Catholic church celebrates Feb. 2, is sometimes called, as candles are blessed on this day, and carried lighted in the procession which usually takes place before the mass begins.

**CANDLESTICK**, an instrument or utensil to hold a candle or other artificial light. The first part of the word is of Latin origin, but the latter part (stick) appears to be Saxon. Candlesticks are of various forms and materials. A branching and highly wrought candlestick of gold made by Moses according to a divinely received pattern, was used in the ancient tabernacle, and afterward in the 1st and 2d temples. The 7 branches of the ancient candlestick were probably symbolical, and the candlestick itself is symbolically used in the scriptures of the New Testament, to represent that which is instrumental in holding forth the light, though it is not the light, and so it is a fit emblem of the church (Rev. ii. 5). The one candlestick of the tabernacle was restored in the 2d temple (of Zerubbabel) after the Babylonian captivity. The 7 lamps held by the 7 arms of the candlestick were kept burning by night, but only one of them by day. The branched form of the 7 arms is uncertain. The form seen on the arch of Titus, who carried away the candlestick with the other utensils of the temple after the sack of Jerusalem, if it is a correct representation of any thing, represents the candlestick made by Zerubbabel, and set in the 2d temple. The representation on the arch is that of an upright candlestick, having branches or arms in the shape of 8 concentric semicircles.

**CANDLISH**, ROBERT S., a prominent minister of the Free Kirk of Scotland. He was educated for the ministry of the Scotch establishment, but his connections with it were short. He was in 1834 settled in a parish of the presbytery of Kelso. From there he was transferred to the parish of St. George, Edinburgh. While here, that memorable struggle began for church reform in the Scotch establishment, which resulted in 1843 in the division of the Scotch church, and the organization of the Free Kirk. In this struggle Dr. Candlish was a leader. He still retains his position as pastor of his congregation in Edinburgh (now Free St. George's), although urged to accept the post of professor of divinity in the Free Church college, and in 1855 the pastorate of a church in Glasgow. He is the author of a work on the atonement, "Contributions to the Exposition of the Book of Genesis," an "Examination of Maurice's Theological Essays," and of many pamphlets and single sermons. His last work, "Life in a Risen Saviour," was published at Edinburgh in 1858.

CANDOLLE, AUGUSTIN PYRAMUS DE, a Swiss botanist, born in Geneva, Feb. 4, 1778, died there Sept. 9, 1841. His father, descended from a noble Protestant family of southern France, acquired a large fortune by commerce, and was, during 20 years, a member of the government of Geneva. Augustin received his first education at the college of Geneva, where his extraordinary memory attracted much attention. Up to the age of 16, poetry and literature were his favorite studies; but subsequently he devoted himself to the study of natural history, especially of botany, in which he received his first lessons from Vaucher, and which became his favorite pursuit. Prosecuting his studies in Paris, he became the favorite pupil of Desfontaines, and was favorably noticed by Dalmien. In 1799, De Candolle commenced the publication of his first work, *Histoire des plantes grasses*, of which the 4th and last volume appeared in 1808. At this period, cultivating the acquaintance of Cuvier, Alexander von Humboldt, and other eminent persons, he became a member of the philomathic society, and was admitted to the circle of learned men whom Berthollet gathered around him in his house at Arcueil in the interests of science. Several very able essays on botanical physiology and geography were contributed by De Candolle to the memoirs published at Arcueil. In 1802 he held the chair of assistant professor to Cuvier at the college of France, and was elected honorary professor of natural history at the academy of Geneva. In 1804 he received the degree of doctor from the faculty of medicine of Paris, for which he wrote a thesis on the medicinal properties of plants, which was translated into German. In 1808 he made a journey through Belgium and Holland, following the seashore from Dunkirk to the island of Texel; and observing there the invasions of the sand, he wrote a remarkable essay "On the Fertilization of the Downs," which was published in the 18th volume of the "Annals of French Agriculture." The special study of invertebrated animals having drawn De Lamarck's attention from phytography, he intrusted to De Candolle the care of a new edition of *La flore Française*, which was considerably improved, and enriched by 6,000 additional species of plants, accurately described; a table of synonymous botanical terms; a very ingenious botanical synopsis; and all the additions and emendations required by the new developments of vegetable anatomy and physiology. The work was not completed until 1815, but the appearance of the first volumes placed De Candolle in the foremost ranks of botanical science at that time. In 1806 he was commissioned by Cadore, minister of the interior, to visit all the provinces of the French empire, then including Belgium, northern Italy, and the countries on the Rhine, and report upon their agricultural condition. Six years were devoted to this task, and 6 successive reports, embodying the results of his observations, were published in the memoirs of the agricultural society of

the department of the Seine. In 1808 he obtained, by public competition, the chair of botany in the medical faculty of Montpellier, and the direction of the botanical gardens, as successor to Broussonet, of whom he wrote a biographical eulogium. In 1818 he published the 1st edition of his "Elements of Botany" (3d edition published by his son, Alphonse de Candolle, in 1844), a work remarkable for its profound analysis and scientific views of method, which was translated into German, English, and Spanish. In 1815 he was appointed rector of the university of Montpellier; but on the restoration of the Bourbons, he was induced to resign, and returned to his native city, where he was received with great distinction. A chair of natural history and a botanical garden were established in Geneva in 1817, especially for him; and both were under his direction, in conjunction with his son. In 1818 he commenced the publication of his large work on the natural system of the vegetable kingdom (*Regni Vegetabilis Systema Naturale*). Two volumes only of this gigantic work appeared; but he continued the same plan in a modified form, in his *Prodromus Systematis Regni Vegetabilis, seu Enumeratio Methodica Ordinum, Generum, Specierumque, &c.*, which appeared in Paris in 1824, and following years. After his death, this elaborate work was continued by his son, assisted by other very able botanists. De Candolle estimated the number of known species of plants to be 70,000, in his time; and the unknown species he believed were not less numerous. He was a corresponding member of the academy of sciences of Paris, and in 1828 he was elected one of the 8 foreign associates; which honor had not fallen to a botanist since the time of Linnæus. Beside the works already named, he published numerous other books and dissertations of importance. De Candolle was not only distinguished by his achievements in botany, but also by his public spirit. In the early part of his life, he took a part in the formation of the philanthropical society in Paris, and of that for the promotion of national industry, and on various other occasions he manifested the same zeal for generous measures. He was a member of the representative council of Geneva, and one of the deputies of the Helvetic diet. He was intrusted with several very delicate and difficult commissions; and his *Rapport sur les magasins de subsistances* contains many luminous ideas on political economy.

CANE. See BAMBOO and SUGAR.

CANE, or KEN, a river of Bundelcund, forming the boundary between Bengal and the Gwalior and Bundelcund territories. After a N. E. course of 250 m. over a rocky bed, it falls into the Jumna.

CANE BRAKE, a term applied to the extensive growths of the *arundinaria macrosperma*, the most gigantic of the grasses, which occur in the southern portions of the United States, and are to be found covering vast extents of country

in the alluvial bottoms of Central and South America. The plant is not unfamiliar in the temperate zones, as its stalks are much used for fishing rods. In descending the Ohio river the early voyagers met with the first indications of cane at the mouth of Big Sandy, which river forms the dividing line between Kentucky and Virginia. This part of the Ohio was distinguished by the plentifulness of game which was attracted to the vicinity by the rich vegetation alluded to. The cane, however, has long since disappeared from that region, having been destroyed by the cattle and the encroachments of civilization; but for many years after the settlement of Tennessee and Kentucky the cane furnished abundant food for cattle, where now it is hardly known even through tradition. Cane brakes are indicative of rich land, as they are only to be found in perfection in the most inexhaustible soils, where, having obtained a foothold, by their more rapid growth they usurp the place of the timber. In the southern portions of the United States the plant often reaches the height of 15 and 18 feet, with a base of 1 to 1½ inch diameter. In more southern latitudes it is very much larger. It grows as straight as an arrow from the root, tapering off finally in a beautiful, thread-like, feathery top. The leaves commence at about ¼ of the height of the plant, and seem to be attached directly to the stalk, as the branches on which they grow, save the very top ones, are not perceptible to ordinary observation. To the hunter as to the emigrant, progress through a cane brake is one of the most toilsome journeys that can be undertaken. Each step is disrupted by the dense vegetation which rises before the intruder like a wall. In places, the cane is sometimes pressed down and interlaced, and then it becomes quite impenetrable. Under the most favorable circumstances the knife has to be freely used. Cane brakes are often many miles in extent, always lessening in density as they reach the high ground. They are favorite haunts for all kinds of game, which seek their solitudes either for protection or for the leaves for food. The deer and bear are particularly fond of the young green leaves, and upon them often become exceedingly fat. The cane stalks being hollow, having no pith, and being divided inside every few inches into sections, they are when dried in the sun very combustible; and the air confined within the hollow sections, warming by the external heat, explodes with very considerable force, so that a cane-brake on fire gives the idea of a continued roar of distant musketry.

CANEAE, or KHANIA, the principal seaport of Candia; pop. 9,000. The harbor is not good, being exposed to N. winds, though it is the best of the island. It has several Greek churches, Mohammedan mosques, and a Jewish synagogue. Canea is the seat of a provincial council and governor, of a Greek bishop, and several European consuls. The town is supposed to be the Cydonia of antiquity, and was conquered by the Turks

in 1645. The town was visited by a formidable earthquake in the night of Oct. 11, 1856, which caused immense damage and loss of life, not only in Canea, but also in other parts of Candia. A serious rising took place here against the Christian population, in June, 1858.

CANELAS, or CANELES, a small town of Mexico, in the state of Durango. The inhabitants are chiefly engaged in working some veins of mercury in the vicinity.

CANETE, a seaport town in the N. part of Peru, is the capital of a province of its own name in the department of Lima. Pop. of the province in 1850, 17,653.

CANEY FORK rises in the Cumberland mountains in Tennessee, and joins Cumberland river at Carthage, Smith co.; length, 125 m.

CANFOO, or CANFU, called by the Chinese Kanpoo, an ancient town and seaport at the head of a bay in the province of Che-kiang, China. It was originally the port of Hangchow, and 2 Arabian travellers who visited the place in the 9th century describe it as the port for all the vessels entering China. The stream which once flowed past it, however, has become choked up with sand, and it is now deserted. Its trade has been transferred to Canton and Chapoo.

CANGA-ARGUELLES, José, a Spanish statesman, born in Asturias in 1770, died in 1843. He was deputy from Valencia to the cortes of 1812. After the return of Ferdinand his constitutional tendencies were so unwelcome to the court that he was banished to Peniscola, in Valencia, whence he was not recalled until 1816. After the revolution of 1820 he was appointed finance minister. While in this office he presented to the cortes a report on all the church and state property of Spain, and a paper on the condition of the Spanish revenue. In this remarkable paper he showed the insufficiency of the national income to meet current expenses, and that a very large deficit was annually accumulating. To meet this, he proposed an immediate loan, and to sell ¼ of the ecclesiastical property, together with the small possessions in Africa, and to levy indirect taxes. These proposals created furious discussions, and, being hotly opposed, were adopted only in part. In 1821 Canga retired from the ministry, and in the following year was returned again as member of the cortes. From his seat he maintained his old attachment to the constitution, and insisted strongly on the necessity of reform in the finance department. When the constitution was suppressed, he fled to England, where he wrote a useful work, "Dictionary of the Spanish Exchequer, for the use of the Supreme Direction." He returned to Spain in 1829, but did not reënter upon public life. He afterward commenced a history of Spain.

CANGALLO, a town of Peru, on one of the head branches of the Apurimac, capital of the province of Cangallo, which has a population of 20,027.

CANGE, Du. See DU CANGE.

**CANGIAGO**, or **CAMBIASO**, **LUCA**, a Genoese painter, born at Genoa in 1527, died in Madrid in 1585. Invited by Philip II. to his court, to assist in the decoration of the Escorial, he painted in the ceiling of the church his picture of "Paradise," his most admired work.

**CANGOZIMA**, or **KANGOZIMA**, a fortified seaport of Japan, situated at the head of the bay of Cangozima, in the island of Kioo-Siwo. The bay is 38 m. long, and from 6 to 12 m. wide.

**CANICATTI**, a town of Sicily, on the Naro, pop. in 1850, 18,000, with extensive mines of sulphur in the vicinity.

**CANICULA**, the dog star, also called **Sirius**, the brightest of all the fixed stars. The days when it rises and sets nearly at the same time with the sun are called dog days. It was much observed by the Egyptians, because the rise of the Nile occurs in the dog days.

**CANINA**, **LUIGI**, an Italian archaeologist and architect, died in Florence, Oct. 17, 1856, officiated for several years as professor of architecture in Turin, conducted the excavations at Tusculum in 1839, and those of the Via Appia in 1848, and wrote on them and also on church architecture, and on various kindred subjects.

**CANINI**, **GIOVANNI AGNOLO**, an Italian painter and engraver, born in Rome in 1621, died in 1666. He was a pupil of Domenichino, and his martyrdom of St. Stephen and of St. Bartholomew are 2 admirable altar-pieces.

**CANINO**, **PRINCE OF**. See **BONAPARTE**, **CHARLES LUCIEN JULES LAURENCE**, under **LUCIEN**.

**CANIS MAJOR**, a southern constellation containing the dog star.—**CANIS MINOR**, a northern constellation, whose appearance in the morning twilight gave the Egyptians notice of the approach of dog days.

**CANISIUS**, **PETRUS**, a German Jesuit, born at Nimeguen, May 8, 1524, died at Freyburg, in Switzerland, Dec. 21, 1597. His original name of De Hondt (the dog) he Latinized according to the usage of the time. He took a prominent part in the council of Trent in 1545, was selected by the emperor Ferdinand I. for his preacher, and did not cease until his death to hurl reproaches against Protestantism. He was the first who held the office of provincial, or ecclesiastical governor of the Jesuits in Germany, contributed powerfully in spreading the influence of the order in that country, and established Jesuit colleges at Prague in Bohemia, at Freyburg in Switzerland, and at Augsburg and Dillingen in Bavaria. He is the author of a larger and a smaller catechism. The best edition of the former is that of Antwerp of 1587, and the most recent edition that of Landshut, of 1842. The smaller catechism (*Institutiones Christianæ Pietatis, sive Pædagogus Catholicorum*) has passed through more than 100 editions since its first publication in 1566, and has been translated into most modern languages, a new edition of the German translation having been published at Mentz in 1840.

**CANITZ UND DALLWITZ**, **BARON**, a Prussian general and statesman, born in 1787, died April 25, 1850, served in the Hessian and Prussian army, and subsequently, after a convention had been concluded between the army of York and the Russian army, remained attached to the latter until 1813, when he returned to Berlin. He was afterward present as the Prussian delegate in the Russian campaign against Poland, and officiated as ambassador at Constantinople, Hanover, and Vienna. In 1846, after Bülau's death, he took his place as minister of foreign affairs, until March 17, 1848, when he tendered his resignation in common with the other members of the Bodelschwingh cabinet. In May, 1849, Count Brandenburg sent him to Vienna with a view of disposing the Austrian government favorably toward the Prussian project of a new German league; but he failed to accomplish anything. He was the reputed author of "Reflections on Strauss's Life of Jesus," which appeared at Göttingen in 1837. He was also the author of a work on cavalry.

**CANKER**, a form of aphthous ulceration of the mucous membrane of the mouth, most commonly seen in children, and usually connected with derangement of the digestive apparatus. The ulcers are small, circular, superficial, filled with a white thick exudation, sometimes surrounded by a circle of inflammation, and very sensitive; they originate in small, hard, red, and painful prominences, which are soon changed into vesicles, hence the name "vesicular stomatitis." When the ulcers are few in number they quickly disappear, their cicatrization being hastened by astringent or caustic applications, and by the exhibition of gentle aperients. In unhealthy children the ulcers are apt to be confluent, and tend to spread to the œsophagus and stomach; in such cases there may be considerable constitutional disturbances, requiring tonics and alteratives. The predisposing cause of aphthæ is any thing that enfeebles the system, and the exciting cause any irritation in the mouth from foreign bodies, decaying teeth, or acrid food. The usual seat is on the inside of the lower lip and cheeks, and on the tongue, though they may occur on almost any part of the mucous membrane. Billard represents them as ulcerations of the muciparous glands or follicles, but in many cases they are too superficial to admit of this explanation. When they occur in debilitated constitutions, in the course of other diseases, they form a painful and dangerous complication, from their liability to extend and to take on a gangrenous aspect. Aphthæ seem to occur epidemically in certain seasons. They are generally only a local affection, and require for their removal only local applications; the best of these is the nitrate of silver, which instantly changes the surface of the ulcer, and causes a rapid cicatrization; other favorite but less powerful remedies are solutions of alum, borax, sulphate of copper, and various vegetable astringents. The chlorate of potash, administered internally, is specially serviceable in this, as in

other superficial affections of the buccal mucous membrane. The return of the ulcers may be prevented by attention to the general rules of hygiene, and especially to the diet, which should be simple, nutritious, and easily digested.

**CANKER WORM**, the caterpillar of a nocturnal lepidopterous insect, or moth, of the family *geometra*, Linn. (or *phalanites*, Lat.), of the group *hybernada*, and the genus *anisopteryx*. In the moths from which canker worms are produced the females are wingless. The males have antennæ with a downy edging on each side; the wings are large and silky, and, when at rest, the fore wings entirely cover the hind wings; the fore wings are ash-colored, with a whitish spot on the front edge near the tip, and 2 irregular white bands crossing them, with black dots along the sides and outer margin; the hind wings are pale ash, with a blackish dot near the middle; the expanse of wings is about 1½ inch. This is the common American species, which is smaller and darker than the European, and is the *A. cernata* (Peck); there is a smaller species, without the whitish bands and spot, the *A. pomataria* (Harris). These moths usually come out of the ground about the middle of March, sometimes a little earlier or later, according to the season, and continue to rise for about 3 weeks; in mild winters they have been seen in every month from October to March; the females are most numerous in autumn and winter, and the males most abundant in the spring. The wingless females creep up the trunks of the nearest trees, and are followed in a few days by the males, when the pairing takes place; the eggs are placed on the branches in clusters of 60 to 100, the number usually laid by each female, and are attached by a water-proof varnish; soon after this the insects die. The eggs are hatched from the 1st to the middle of May, at the time when the red currant blossoms and the young leaves of the apple begin to start; the young worms gather upon the tender leaves, and creep into the buds and flowers; at first they make but small holes, but at last devour all the pulpy part of the leaves of the apple, elm, cherry, plum, lime, and other native and cultivated trees. The worms vary considerably in color within the limits of the same species; when very young they are of a blackish brown color, with a yellowish stripe on each side, the belly whitish, and 2 bands of this color across the head; when fully grown they become ash-colored on the back, black on the sides with a pale yellowish line below it; some are dull greenish yellow, others green with 2 white stripes on the back, and others clay-colored; when full-grown they are nearly an inch in length. After eating for about 4 weeks, they begin to quit the trees on which they have fed; some creep down, but most let themselves down from the branches by threads, as every one has seen by the roadsides; they burrow immediately into the earth, from 2 to 6 inches in depth, according to the nature of the soil; they make little cavities in the earth by turning

themselves round, and are changed into chrysalids within 24 hours, those of the females being the largest; the chrysalis state may continue until the following spring, or it may cease in mild weather in the autumn. They come out of the ground mostly in the night. Nature seems to desire to confine the canker worms to a limited space, as the females have no wings, and bury themselves within the spread of the trees from which they descend; but accidents have extended them to remote localities. The canker worm has 10 legs, 6 anterior jointed ones, and 4 fleshy prop-legs behind; they are called span worms and loopers from their singular mode of progression; from the absence of the 8 intermediate pairs of prop-legs in the centre of the body, when creeping they arch up the back and bring forward the hind part of the body, and then, resting on their prop-legs, they stretch out to their full length in a straight line, and so repeat the spanning process.—The ravages of canker worms are not very apparent until June, when they are most voracious; but then the leafless and apparently withered fruit trees and elms afford a melancholy spectacle. The best way of destroying the canker worm is to prevent the females from ascending trees to deposit their eggs; various methods have been resorted to for this purpose, consisting in the application of viscid substances to the trunk, immediately on the bark or on strips of cloth, paper, or board; tar is generally used, and it should be applied from November, and renewed daily as long as the insects come forth; tin troughs filled with cheap oil a few feet above the ground have been tried with success on a small scale; melted India-rubber has been recommended in England. When the worms are on the leaves, they may be destroyed on small and choice trees by dusting air-slacked lime on them when wet with dew. Showering with a mixture of whale-oil soap in water, in the proportion of 1 pound to 7 gallons, will kill the worms without injuring the leaves or the fruit. By jarring the limbs many worms will descend with their silken threads, and may be easily killed. After they have entered the ground, they may be killed by digging or ploughing under the trees, scattering a few grains of corn, and turning a few hogs into the orchard; these animals will root up and devour the chrysalids, and will crush many with their feet. Canker worms are eaten by many species of birds; ground beetles also devour them; the potter wasp fills her clay cells with them as food for her young; ichneumon flies deposit their eggs in them, and the little maggots thence arising feed upon their substance; even their eggs are pierced by a small 4-winged fly, sometimes every one in a cluster being thus rendered abortive. No doubt beast, bird, and insect would be enough to keep the canker worms within their natural limits; but since the felling of the forests in which they naturally dwell, and the persecution of insectivorous birds which devour them, they seem to have increased in spite of

all man's destructive ingenuity. For fuller information on these pests, and the best means of destroying them, the reader is referred to Dr. Harris's treatise on the "Insects injurious to Vegetation."

CANNE, a village in the province of Bari, Naples. It occupies the site of the field of Cannæ, memorable for the defeat and fearful slaughter of the Romans by Hannibal, 216 B. C. The place is still called *Campo di Sangue*, or "field of blood."

CANNEL COAL. See COAL.

CANNELTON, a town on the Ohio river, Perry co., Ind.; pop. in 1858, 2,500. In the hills which surround it are found beds of cannel coal, lying in nearly horizontal strata 4 or 5 feet thick, and easily accessible. For the purpose of working these beds the American cannel coal company was incorporated in 1836, and to the improvements commenced by this company Cannelton owes its present flourishing appearance. Its mineral wealth, and its advantages as a manufacturing town, have produced such a rapid growth of population, that although 12 years ago it contained only 4 or 5 log cabins, it is now the largest town in the county, and contains several churches and elegant residences, a newspaper office, and a large cotton factory. This factory, which is called the Cannelton cotton mill, is built of variegated sandstone, and presents, from the river, an imposing appearance. It can manufacture 40,000 yards of sheetings per week. Fire-clay, limestone, and fine sandstone for building purposes, are found interstratified with the coal.

CANNES, a seaport town of France, pop. 5,557, in the department of Var. It is regularly built, lies on the road from Toulon to Nice, and has a fine promenade along the coast. The climate is unhealthy, but the neighboring country is fruitful in vines, olives, and oranges. An active trade is carried on in these products, and especially in sardines and anchovies. Opposite Cannes lies the St. Marguerite, one of the 2 isles in whose citadel the "man in the iron mask" was first imprisoned. Napoleon landed here March 1, 1815, on his return from Elba. A charming villa in the vicinity has been for several years the residence of Lord Brougham. An English chapel was erected at Cannes in 1855.

CANNIBALS, a term probably derived from the Indian language, and of the same family as the word Caribee, or Carib. Columbus relates that he was in great fear of the Carribals, which word was probably corrupted into cannibals. It signifies, as now used, eaters of human flesh. This practice is not, however, confined to the Caribs. The Greeks knew of tribes anciently who ate human flesh, and called them anthropophagi. In modern times, not only the aboriginal Caribees, but various tribes of the South sea islands, are given to the practice, which they generally indulge upon captive enemies.

CANNING, GEORGE, a British statesman,

born in London, April 11, 1770, died at the duke of Devonshire's villa at Chiswick, Aug. 8, 1827. His father, who was of an ancient family of Warwickshire, died when he was only one year old, and his education was left to his mother. She supported herself by performing upon the stage, until she was again married. He was sent, at the expense of an uncle, to Eton school, and from the first evinced the most decided literary abilities. He wrote poetry before he was 16, and engaged with some companions in the publication of a weekly periodical, called the "Microcosm," which was continued for a considerable time. From Eton he went to Christchurch, Oxford, where he gained high academical honors, and took a brilliant position as an orator. His vacations introduced him, by means of the friendship of Sheridan, to the conversation of Burke, Fox, Lord John Townshend, the duchess of Devonshire, and other leading personages of the whig party. It was through their influence, doubtless, that he relinquished his intention of studying for the bar, to devote himself to politics. He had not, however, entirely adopted their political principles, and in 1798 he allowed himself to be brought into parliament, on the tory side, by Mr. Pitt. During the whole of his first session, he had the sagacity to refrain from taking part in the debates, and to surrender his whole leisure to the careful study of the forms and practices of parliamentary assemblies. This enabled him, when he undertook to address the house, the next year, to do so with ease and self-possession, and to produce a marked effect. His success, indeed, so convinced Pitt of his ability, that the skillful minister suffered him to conduct the argument in several of the most important subsequent discussions. In 1796 he took office as under-secretary of state; in 1797 he commenced with others the publication of the political paper, the "Anti-Jacobin;" in 1798 he engaged in Wilberforce's plan for the abolition of the slave trade; in 1799 he was appointed one of the commissioners for managing the affairs of India; in 1800 he married Joanna, youngest daughter of Gen. John Scott, with a fortune of £100,000; and in 1801 he retired from office, to participate with Pitt and others in a most effective parliamentary war upon the administration. It was during the several subsequent sessions, while acting in opposition, that he acquired his highest reputation as a keen, sarcastic, witty, and eloquent speaker. Few men have appeared in parliament equal to him in showy declamation, cutting irony, and sparkling wit. On Pitt's return to office in 1804, he was made treasurer of the navy. After a brief retirement in 1806, occasioned by the death of Pitt, he reappeared in office in 1807, as secretary of state for foreign affairs, under the administration of the duke of Portland, in which position he particularly distinguished himself by the ability and skill, as well as by the spirited composition, of his state papers. In 1809 he became involved in a

quarrel, growing out of the Walcheren expedition, with one of his colleagues, Lord Castlereagh, which led to a duel, and afterward to the resignation of both parties, together with that of the duke. During the session of 1812 he strenuously advocated the Catholic emancipation bill, set on foot by Mr. Grattan; and the final success of that measure of justice and toleration was greatly indebted to the eloquent assistance of Mr. Canning. He was the same year returned to parliament from Liverpool, which city gave him its support again in 1814, in 1818, and in 1820. In 1814 he was sent ambassador to Portugal; in 1816 he became president of the board of control; and in 1820, to avoid participating in any way in the trial of Queen Caroline, resigned his place, and travelled upon the continent. In 1822, the responsible place of governor-general of India was offered to him, and he had made his preparations for leaving England, when the sudden death of Lord Castlereagh, by suicide, recalled him to his former post of secretary of state for foreign affairs. While in this position, in 1825, he resolved to recognize the independence of, and open diplomatic intercourse with the several South American republics, and soon carried his intention into effect. In 1827 he was appointed premier, greatly to the dissatisfaction of the tory party; which, under lead of the duke of Wellington, Lord Bexley, Viscount Melville, Mr. Robert Peel, and others, deserted him, and compelled him to solicit an alliance with the whigs. He was supported by Lord Brougham, Sir Francis Burdett, and Mr. Tierney, but had to sustain a most formidable opposition, which put in requisition all the dexterity of his logic, and all the sharpness of his wit. Declaring himself, finally, inimical to parliamentary reform, and to the repeal of the test and corporation acts, he was left without a party, and it was the vigor of his foreign policy alone which retained him in the ascendant. He spoke for the last time on June 27, 1827, and the next morning signed the treaty between England, France, and Russia, for the settlement of the affairs of Greece (one of the earliest poems which he wrote in his youth was on the slavery of Greece), when he retired for a change of air to the duke of Devonshire's villa at Chiswick, where he died. A newspaper of the day, the "Examiner," which had not been friendly to him in politics, because of his alleged want of liberality in the conduct of domestic affairs, yet closed the announcement of his death with the following just and beautiful appreciation of his character: "On Canning's genius, it is unnecessary for us now to descant; our estimation of it has been often expressed. He was the last of the rhetoricians. Had he been less an orator, he would probably have been a greater man. He followed, however, the tawdry fashion of his day; and the tinsel and finery could not disguise the thews and sinews they encumbered. Self-complacency was a prominent feature of his character, and

the nice description, *Omnium qua dixerat feceratque arte quadam ostentator*, was peculiarly applicable to him. But if ever vanity was excusable in man, it was excusable in George Canning, who, endowed with every choicest gift of nature, had risen from a low condition to the highest office in the state, and seen centred in himself the best hopes of the best men in the civilized world. We read in the tales of superstition of men who have made compacts with the fiend; a Faustus could hardly have desired to be more than a Canning. A fine person for the love of women; a mind for the admiration of man; a golden tide of fortune which had its slacks, indeed, but no ebb; and a death which has abruptly left his character, as it was gilded with the glow of a world's best hopes." His "Speeches," with a memoir by R. Therry, 6 vols. 8vo, were published in London, 1828. He was buried in Westminster Abbey, near Pitt.—CHARLES JOHN, viscount, a British statesman, son of George Canning, born at Gloucester Lodge, Brompton, Dec. 14, 1813; distinguished himself in the classics at the university of Oxford; represented Warwickshire in the house of commons in 1836; and on March 27, 1837, after his mother's death (on whom the peerage was conferred in 1828), became viscount, and took his seat in the house of lords. In 1841 he was made under-secretary of state for foreign affairs, and subsequently chief commissioner of woods and forests. In 1851 he took a prominent part in the great industrial exhibition. In the ensuing year he became postmaster-general, with a seat in the cabinet under the Aberdeen administration. In 1855, on the resignation of Lord Dalhousie, he was appointed by Lord Palmerston governor-general of India, which office he still retains (Aug. 1858). The formidable sepoy rebellion broke out during his administration, and he was as much censured for his leniency at the beginning of the outbreak, as for his severity afterward. His proclamation, confiscating the property of the natives of Oude, elicited a strong condemnatory counter-despatch from Lord Ellenborough, president of the board of control, and in the discussions in both branches of the British legislature was generally pronounced to be harsh and ill-advised.

CANNING, SIR GEORGE STRATFORD. See STRATFORD DE REDCLIFFE.

CANNON, implements of war for throwing heavy projectiles, as shot and shells, by the explosive force of gunpowder. The most ancient form of the cannon is the mortar, a short and wide-mouthed piece of ordnance, originally used for throwing stones, and now applied to casting bomb shells. Cannon for propelling balls are hollow cylinders of gun metal or bronze, an alloy of copper with 8 to 10 per cent. of tin, or they are made of cast iron; and some heavy experimental pieces have been made of wrought iron, but the number of this class in actual service is exceedingly small. The severe trial to which the metal is put when in use requires a



material of great tenacity and hardness—the former to withstand the force of the explosive fluid applied to burst open the gun, and the latter to resist the wearing action of the ball as it pounds down upon the surface it rests upon, when first struck and perhaps temporarily flattened by the force of the explosion; an indentation is thus produced, which continually grows larger, and is soon followed by another in the upper surface a little in advance of the former, which also increases till the gun is worn out by this lodgment, as it is called. Cast iron, in the improved methods of preparing it, combines the required hardness and tenacity with cheapness more perfectly than any other material. But as formerly manufactured it was very uncertain in its character, often being far from homogeneous in texture, and at the best estimated capable of resisting a force applied to tear it asunder of only 20,000 lbs. to the square inch, while the tenacity of bronze was rated at 80,000 lbs.; and this beside was regarded as more to be relied upon for uniformity of character than cast iron.\* Its inferior degree of hardness, however, to cast iron, and its great cost, limited its use to the smaller-sized pieces, for which it still continues to be employed; while for every thing above field pieces cast iron is the material in general use, and is likely to take the place of bronze altogether. In strength, it may safely be rated as equal or even superior to that of bronze, as will be seen by reference to the experiments referred to below. Wrought iron possesses the greatest tenacity, but is deficient in hardness. The greatest objection to its use, however, is the difficulty of constructing large masses of wrought iron by continual reheating and forging, as new pieces are added and combined with those previously put together, without causing portions to change their texture and undergo a partial crystallization, thus weakening the mass without any sign of this change being visible. All the earlier guns previous to the 15th century were made of wrought iron, commonly of hoops incasing bars of the same material. It was by the bursting of such a piece in 1460 that James II. of Scotland was killed. In recent times wrought iron has been used with other materials in experimental guns made by a variety of methods, as over a lining of steel and over cast iron; and it has been put together and

welded in the form of hoops. As its extreme tenacity renders it the best material for cannon, there is no question but these experiments will be continued, till some method has been devised of constructing a gun of perfectly uniform texture of it, hardened within to resist the battering action of the ball. The facility with which malleable iron is now melted and carbonized to produce cast steel suggests this as a possible means of accomplishing this result. Considering the improvements which have been made in all branches of industry, it is a matter of surprise that cannon in general are no better essentially than those made 50 years ago. If 10 inches diameter of bore is now their limit, instead of 7 inches, their strength has not proportionably increased, for the range of the balls is not so great as that of the old 42-pounder. In our own forts a 24-pounder was the maximum size in 1820. In 1850 the largest guns were 10-inch bore, carrying balls of 125 lbs. Attempts have since been made to produce larger pieces, but the difficulty of rendering them enduring and safe in use increases so rapidly with the increase of their calibers, that little is gained in these attempts. The subject is constantly receiving the attention of scientific and practical men, and extended experiments upon a large scale have been conducted for years past under authority of different governments. Our own has entered into these researches with great liberality, and several important reports of the officers and engineers engaged in the work have been made public. The principal of these is the volume of "Reports of Experiments on the Strength and other properties of Metals for Cannon, with a Description of the Machines for testing Metals, and of the Classification of Cannon in Service, by Officers of the Ordnance Department, 1856." Professor Treadwell, of Cambridge, has presented to the American academy an important communication upon the same subject, in which he argues the practicability of constructing very large and efficient cannon, and submits a method by which this may be done, a sketch of which will be found in this article. Since the year 1841, by the regulations of the ordnance department, an officer is required to be in constant attendance at the founderies, while the cannon are making, to examine and test the metal before it is used, as also in the first gun made before another is cast from it. This inspection has rendered it unnecessary to use excessive proof charges in the final proof, which may do serious injury to the gun without leaving any indication of it; it has also resulted in increasing the average strength of iron cannon from 23,688 to 37,774 lbs. per square inch. The strongest piece of iron ever cast was a sample of Greenwood (Orange co., N. Y.) iron, brought by the proper number of remeltings to that degree of density which is combined with the greatest strength. In the sample the density was 7.804, and the tenacity 46,970 lbs. per inch. This method of strengthening

\* From the experiments of Major Wade upon the bronze cannon cast at Chicopee, Massachusetts, in 1850, it would appear that uniformity of character could hardly be attributed to bronze castings. Samples taken from different parts of the same gun showed a difference of density amounting to 80 lbs. in the cubic foot, and the extreme variation in samples from different guns amounted to 34 lbs. in the cubic foot; the difference in tenacity from a capacity to bear a strain of 23,108 to one of 54,581, being as 100 to 236. "The materials used in all these castings are of the same quality, they were melted, cast, and cooled in the same manner, and were designed to be similarly treated in all respects. The causes why such irregular and unequal results were produced, when the materials used and the treatment of them were apparently equal, are yet to be ascertained." The tendency of bronze to separate into alloys of different composition and strength, when cooled in large masses, was fully established in these experiments.

iron by remelting is a principle developed by these experiments, made under the inspection of Major Wade, U. S. A. The transverse strength of some iron was found to be nearly doubled by 4 meltings and castings. From experiments made at the South Boston foundry in 1844, under the same inspection, other curious facts were developed, as that the cohesive power of iron is augmented by exposing the metal when melted to an intense heat; "and that this power increases as the times of exposure up to some (not well ascertained) limit; and that, if extended beyond that limit, the strength of the iron is thereby diminished." Experiments made at the same place upon the relative strength of cast iron bars 2 feet long and 2 inches square, made from metal kept in fusion different periods of time before casting, made it appear "that the cohesive power of the iron, so far as it can be shown by its capacity to resist transverse strains, is increased by its continued exposure in fusion from 100 to 160, or 60 per cent." The longest time that the iron was kept in fusion was 4½ hours. The results of the experiments of casting cannon in pairs, one solid and one hollow, both of the same mixture of iron, appear likely to cause the old method of making the cannon hollow at once, which was abandoned in Europe in 1729, to be reestablished, and the universal practice of casting the guns solid and then boring them out, to be given up. By means of a stream of water introduced into the hollow core, as devised by Lieut. Rodman, the cooling of the interior of the metal is accelerated, while that of the external part is checked by surrounding it with heated air. The metal is thus protected from unequal contraction and consequent strain resulting from differences of temperature. Two guns, of 8-inch bore, of the same iron, possessing hardness and strength in a high degree, were cast—one solid and bored, and the other hollow. The solid gun burst at the 78d discharge; the hollow one withstood 1,500 fires, proving indestructible by service charges. Another pair of 10-inch guns burst—the solid cast gun at the 20th fire, and the hollow gun at the 249th. Some curious facts also are observed respecting the effect of leaving the guns a long time before trial. Eight-inch guns, cast solid and proved in 80 days, stood but 72 charges; one of the same bore, proved 84 days after being cast, stood 84 charges; another proved in 100 days stood 781 charges; and another that lay 6 years after being cast stood 2,582 charges. The particles of cast iron strained in the cooling by unequal contraction, are supposed by Major Wade to readjust themselves in the course of time, and assume the position giving the greatest tenacity. —The largest cannon ever made was constructed in 1856, by Messrs. Horsfall of Liverpool, and presented to the British government. It is a wrought iron gun, made by welding together oblong slabs of metal 8 feet long by 1½ broad, laid one upon another in different directions, as the piece was built up. The whole mass, ready

for boring, measured 15 feet in length, 8 feet 10 inches in diameter at the larger end, and 2 feet 10 inches at the smaller end, and weighed 26 tons. Its construction required the work of 7 successive weeks, day and night, and at times 40 men were employed at once about it. The hammer weighed 9 tons, and in using it especial care was taken, that the iron should never be struck when cold or partially so. It was first bored out 11 inches diameter, then 12½, and finally 18 inches, for a length of 18½ feet. No imperfection of any sort was discovered during the boring—no indication whatever of crystallization having commenced. When completed the weight was 21 tons 18 cwt., nearly 3 times that of the Stockton gun, which weighed 7 tons 17½ cwt. Its outside diameter at the breech is 44 inches; at the muzzle 27 inches. Its capacity is for a ball of 302 lbs. weight, which, with a charge of 90 lbs. of powder, is expected to be projected at least 5 miles. An attempt was made the previous year by Mr. Nasmyth to make a much larger wrought iron gun than this—one that should throw a ball weighing ½ a ton 4 miles, with 225 lbs. of powder. By the unequal heating to which different parts of the great mass were subjected in the forging, the metal assumed in some places a crystalline form, by which it was so weakened, as to be considered unfit for use. It was proposed by Dr. Noad to endeavor to restore the fibrous structure by annealing. Prof. Treadwell regards these attempts, which are still continued in Europe, "to make wrought iron cannon by the process of fagoting or piling, as a strange engineering delusion." The tenacity required for cannon cannot be uniformly retained in iron subjected to repeated heatings and hammerings. He proposes to obtain the strength of wrought iron by constructing a cannon of cast iron, the thickness of the metal being ½ instead of the whole diameter of the bore, as usual. "Upon this body he places hoops of wrought iron in 1, 2, or more layers. Every hoop is formed with a screw or thread upon its inside, to fit a corresponding screw or thread formed upon the body of the gun first, and afterward upon each layer that is embraced by another layer. These hoops are made a little, say 1/100 part of their diameters, less upon their insides than the parts they enclose. They are then expanded by heat, and, being turned on to their places, suffered to cool, when they shrink and compress, first the body of the gun, and afterward each successive layer all that it encloses." By making the hoops considerably smaller than the parts they surround, they accommodate themselves to the strain, and may, like all malleable bodies, be extended much beyond their power of elasticity without fracture. The screwing on of the hoops is regarded as essential, and also their being "spliced" to prevent their starting. The trunnions are to be welded upon one of the hoops. Cross fracture is guarded against by the cast iron body, and also by the outer rings breaking joints over the inner. Prof. Treadwell presents

a series of calculations, showing that a gun of 14 inches caliber, made in the manner proposed, and carrying a spherical ball of 374 lbs., will bear 68,960 lbs. to the square inch exposed to the fluid, or the pressure of 4,264 atmospheres. He also calculates that a pressure of 32,000 lbs. to the inch is required to give to a 14-inch shot an initial velocity of 1,600 feet a second, which is only half what the gun will bear; while, with a gun of this size, made of cast iron alone, its power of resistance is limited, according to the old estimates of the strength of cast iron, to 20,000 lbs. to the inch, or less than  $\frac{1}{2}$  that which may be required to obtain the velocity. He further calculates that a cannon of any size may be thus constructed capable of sustaining the pressure of 4,264 atmospheres, and one so made of 30 inches diameter—if such were practicable—would have precisely the theoretical capacity of giving to its spherical ball, weighing 3,670 lbs., the velocity of 1,600 feet a second. A patent has been recently granted to Capt. Blakely, of the royal artillery, England, for constructing cannon upon this principle, using cast steel instead of cast iron for the body. M. Thiers has also proposed a somewhat similar method, viz.: lining the interior of the mould with bars of wrought iron the length of the gun, set on end, and arranged at intervals of 8 inches or thereabout. When the cast iron is run into the mould the bars adhere to it, and the texture of these is not materially affected, excepting being partially changed to steel on the surface next the cast iron. The gun is then to be encased in hoops of wrought iron shrunk upon it, and the trunnions welded to one of them.—The Lancaster gun differs from other cannon in the bore being shaped very much as in some rifles, in a twisted ellipse or an elliptical twist. The form of the ellipse, however, in the rifle is but faintly expressed in the 2 opposite twisting grooves; in the cannon the greater proportional size of the grooves gives the elliptical form. These guns were found in practice in the Crimea to have an immense range, but they were uncertain in their aim, and enormously expensive, each discharge costing £20. Some of them burst in the most destructive manner; but whether this was owing to their being too light for their charge and weight of ball, or to the tendency of the ball to go straight forward, and thus wedge itself in attempting to pass the very gradual curve of the rifled bore, is undetermined. The principle of its construction seems to be a good one. The gun invented by Colonel Cavalli, of the Sardinian army, is somewhat upon the same principle. It is double-grooved, giving about a three-quarter turn to the projectile. This is of an oblong form, of cast iron, pointed at the top, convex toward the powder, and having 2 ribs running lengthwise to correspond with the grooves in the gun.—The greatest improvement recently introduced in the form of cannon, is in reducing the proportion of metal between the muzzle and the trunnions, which is found in guns of the

common mould to be largely in excess. The weight is thus placed about the breech where the strength is needed. The guns cast by the United States for the new steam frigates are regarded as the most perfect models yet constructed. Their peculiar form was proposed by Capt. Dahlgren, of the U. S. navy, by whose name they are generally known. In length, range, and weight, the 8-inch shell-gun of Dahlgren does not materially differ from the 32-pounder, regarded as the best solid shot-gun on board ship. Those of greater bore are proportionally larger, with range also proportionally increased, as appears by the following data from the Ordnance Manual:

<i>Dahlgren's 8-inch shell-gun.</i>		
Length of bore.....	100.3 inches	
Weight.....	63 cwt.	
Range at 5° elevation, at 9 feet above water—		
level, charge 9 lbs.....	1,776 yards	

<i>Navy 32-pounder (heavy).</i>		
Length of bore.....	107.5 inches	
Weight.....	67 cwt.	
Range at 5° elevation, 9 feet above water—		
line, charge 9 lbs.....	1,980 yards	

A 10-inch Dahlgren has a length of 107 inches.—The casting of heavy cannon is rarely conducted at the blast furnaces where the iron is made from the ores. The quality of metal thus obtained is too uncertain, and is always inferior in strength to the same iron after having been several times remelted. The pigs selected at the smelting establishments are the different grades of foundry iron, from the softest and toughest gray metal to the hardest of the same shade, and these are mixed at the foundries, and remelted according to the judgment of the founder. As in the casting of bells, several furnaces—reverberatory or cupola—are usually employed to furnish the metal for a single casting, each supplying, it may be, 4 to 10 tons. The metal, as it runs from these, when they are tapped, flows through channels in the sand into a reservoir, from which runners or channels in the sand lead over the top of the moulds, which have been prepared in the moulding bed or floor of the foundry. As the liquid iron flows down these runners, the moulds are slowly and steadily filled, without air being conveyed with the metal to disturb its quietly settling, or to injure its texture. The same result is, perhaps, better attained in casting brass guns, the liquid metal being introduced into the mould at their lower portion. Several cannon are usually moulded in the same pit. The mould is in sand enclosed in a huge case of cast-iron, called a gun box, made in sections, which are bolted together as they are laid by the crane one upon another in the pit. Their shape is a clumsy imitation of the more perfect form within. The sand which lines the gun box receives its impression from the pattern, between which and each corresponding section of the case, in turn, it is rammed in small quantities at a time, being tempered with clay to the proper consistency. The flat surface of each block of the sand mould which is to coincide with the next section, is

blackened over with a wash of fine charcoal and clayed water, to prevent adhesion as the different sections are moved. By keeping the transverse sections slightly separated as the mould is prepared, the sand projects a little, so that no metal can find its way between the sections making a fin. The gun box stands in the pit on its larger end or breech, the gun head, or portion projecting beyond the mouth of the piece, and which is cut off in the finishing, being below the level of the reservoir of the liquid metal. The lower section, in which is the mould of the breeching and the cascabel, or extremity of the gun, is entire; the upper sections, commonly 5 in number, are in halves divided longitudinally, each half containing the mould of one-half the piece for the length of its section. These halves are securely bolted together by outside flanges, in the same manner that these sections are secured together. The trunnions, which make the axle upon which the cannon is supported when in use, are moulded in the second section of the gun box above the breech, lateral projections in the box affording room for the cylindrical cavities in the mould to be filled by the trunnions. The cavity of the mould is brought into a perfectly vertical position by adjusting the box as the plumb line indicates. Sometimes the whole is supported by ramming sand around the box, at others an open space is left around, which is covered over above to retain the hot air, thus preventing rapid cooling. The temperature of this space is sometimes increased by fires kept burning in it for several days after casting. Such is the usual method of casting solid cannon. By the improvement introduced by Lieut. Rodman, guns are now cast hollow of greatly increased strength. A core formed on a tube of cast iron, which tube is water-tight and close at the bottom, is placed in the axis of the mould. Into the bottom of this tube, through a smaller one placed in its centre, a current of water is discharged, and ascending above the top of the piece constantly passes off, cooling the interior.—When the cannon is taken out of the mould, it is placed in a lathe, being secured at one end by the square block cast at the end of the cascabel, and the other placed in a collar a little back of the muzzle, in which it can revolve. The first operation is to cut off the head, which is 2 to 3 feet long. The object of this addition to the gun is, that the upper portion of the casting, usually the weakest, may be rejected. The piece, if solid, is then bored, a steel cutter fixed at the end of a bar being made to penetrate, as the gun slowly revolves in its frame. When the boring is completed, the gun is finished upon the outside by the tools used in turning iron. It is then taken out of the frame, the square block is cut off from the cascabel with a cold chisel, and the trunnions are dressed with the same instrument. The touchhole is drilled with a stock and bit. The piece is then ready to be proved, which is done in this country by testing the strength of a cylinder of the iron an inch in diameter and

3 inches long, cut out of the cannon, formerly from one of the trunnions, but now from the barrel near the muzzle. The specific gravity and other properties of the sample are carefully noted, and these, together with the trials to which it is subjected, and the hardness of the metal determined by a very exact method, give correct indications of the strength of the gun, without the necessity of submitting it to extreme proof by firing with constantly increasing charges, until the piece is destroyed. Indeed, to such perfection have these proofs been brought, that guns have been selected as of inferior quality from among a large lot, which, on reference to the books of the foundry, were found to have been the only ones of the lot made of hot-blast iron. According to the indications furnished by the tests, several guns are usually taken from each large lot of them, to be submitted to extreme proof—the selection being generally of those that appear to be the poorest, best, and intermediate qualities. These are fired commonly with charges of powder equal to  $\frac{1}{4}$  the weight of the ball, with one shot and one junk wad over it. The firing is continued, unless the piece previously bursts, to 500 rounds. Then 1 ball more is added with every discharge till the bore is filled. The powder is afterward doubled in quantity, and the bore filled with shot at each discharge. When it bursts, pieces are selected for further examination from the breech, near the trunnions and the chase. Guns are also tested by hydrostatic pressure, water being forced into the bore with increasing pressure, till it sometimes bursts the piece, or brings to light its hidden defects by opening the small fissures, that were concealed in the metal. It is not uncommon for it to appear upon the exterior of pieces, of which the thickness of the metal is 4 inches, exuding through as a thin froth, which collects upon the outside and forms drops and little streams. By this method, the exact pressure applied is known, and may be gradually increased to any desired degree. Sample bars are also cast together with the cannon, which furnish some indication of the strength of the metal. The different rates of cooling of the large and small mass, however, render their qualities somewhat dissimilar.—Bronze cannon are cast in a mould of loam, the pattern for which is prepared as follows: around a tapering rod much longer than the gun, soft rope is wound enclosing it entirely in its coils. Over this, when brought very nearly to the outer form of the intended body of the gun (not including the breech and the head), is plastered a layer of prepared clay or of plaster of Paris, and by causing the rod to revolve against a profile board having the exact outline of the gun, the model receives its shape. The models of the trunnions are then made of plaster and attached to it, and the whole is thoroughly dried. It is then washed over with a preparation of ashes or other substance to prevent adhesion, and several coatings of putty loam are laid on and dried till they resist the point of a knife.

These form the first layer of the mould. Other layers of moulding loam are added, till the whole thickness is about 24 inches. The mould is then encased in iron bands, and more loam is laid on over them, to the thickness in all of 4 or 5 inches. Over this are put on more hoops and more loam again. The tapering rod is now drawn out together with the rope and the first coating upon it, and the plaster models of the trunnions are removed. The breech mould is prepared in a similar way, and set in an iron casing called the goblet mould, which supports the whole mass. The mould for the head is also made in the same manner. After being thoroughly dried, the 8 pieces are set up in the pit, firmly secured together, and the joints well plastered. Several moulds are usually prepared at the same time, and arranged in the same pit. The spaces around them are filled in with earth which is carefully rammed; the runners for the metal to flow in being made in this case to lead over the top of the head, as in casting iron guns. Such is a general description of the French method of casting bronze cannon, which is somewhat varied in this and other countries. When cast, the processes of boring and finishing are similar to those applied to cast iron guns, when they are made solid.—(See ARTILLERY, CASTING, and GUNNERY.)

CANNON, a central county of Tennessee, area 220 sq. m., drained by Stone's river and the Caney fork of Cumberland river. The surface is uneven and the soil generally fertile. Productions in 1850, 554,497 bushels of corn, 66,825 of oats, and 70,077 lbs. of butter; number of pupils in the public schools, 990. Capital, Woodbury; pop. 8,982, of whom 842 were slaves.

CANNONADE, in a general sense, the act of firing artillery during a battle or a siege. As a technical expression in tactics, a cannonade means an engagement between 2 armies in which the artillery alone is active, and the other arms are either passive or do not, at least, overstep the bounds of mere demonstration. The most celebrated instance of this kind is the cannonade of Valmy, in 1792. Kellermann awaited the attack of the Prussian army on a range of heights, his artillery placed in front of his troops. The Prussians drew up on the opposite range of the hills, brought forward their artillery, and the cannonade began. Several times the Prussian infantry formed for the attack and advanced a little; but, the French remaining firm, the Prussians withdrew again before coming within musket range. Thus the day passed, and the next day the Prussian army began their general retreat. In most general engagements such cannonades occur. They often form the 1st act of the performance; they serve to fill up the intervals between a repulsed attack and another attempt to dislodge the enemy; and they form the *finale* of most drawn battles. In most cases they serve more for purposes of demonstration than for any thing else, causing by a great waste of ammunition at long ranges that

almost incredibly small proportion of hits to misses which characterizes the artillery practice of modern battles.

CANNSTADT, a German town in the kingdom of Württemberg, on the Neckar, the seat of a superior bailiwick, a favorite resort of the people of Stuttgart, the distance from the capital being only 8 m.; also much frequented as a watering place, the 40 mineral springs in the town and its vicinity possessing a high reputation for their salutary effect upon bowel and nervous diseases. King William caused a beautiful Cursaal to be erected near the principal spring, the Wilhelmsbrunnen. Two establishments for cripples and scrofulous persons are favorably known abroad, and the mineral springs in the neighboring village of Berg are also resorted to. The Neckar is navigable near Cannstadt, and affords facilities for an active transit trade. Manufactures of cottons, woolsens, and tobacco flourish, and the culture of the vine, as well as other agricultural products, diffuses prosperity among the population. In July, 1796, a battle was fought near the town, between the French and the Austrians. Upon the ruins of an old feudal castle of the house of Württemberg, which bore the same name, a Grecian temple, with the mausoleum of his queen, Catharina, was erected by King William in 1819. Many Roman antiquities have been found in the vicinity.

CANO, ALONZO, surnamed EL RACIONERO, a Spanish painter, sculptor, and architect, born in Granada, March 19, 1601, died there, Oct. 5, 1665. He became so distinguished in each of these arts that his countrymen called him the Michel Angelo of Spain, although the title is due more to his versatility than to any resemblance in point of genius to the great Florentine. His "Conception of the Virgin," in the church of San Diego, at Granada, is considered his masterpiece. His works in sculpture and architecture are also numerous. He was a contemporary of Velasquez, and in 1639 was appointed court painter to Philip IV. His ungovernable temper on various occasions brought him in danger of the inquisition, and he was once put on the rack on suspicion of having killed his wife in a fit of jealousy, but was subsequently absolved from the charge. On this occasion his right arm was exempted from torture, as being *excellens in arte*. As an illustration of his whimsical character, it is related that on his deathbed he refused to take the crucifix from the priest on account of its bad workmanship.

CANOE (Fr. *canot*), a boat such as is built by savages, either by hollowing out a log or by stretching the skins of animals or the bark of trees over a light frame. Log canoes are made of large size from the white pines of the north and the cottonwood tree of the south, and are used principally for transporting freight upon rivers and smooth waters. Small ones serve the northern *voyageur* for short excursions; but for long expeditions, and across

portages overland from one river to another, or past falls and rapids, the light birch canoe of the Indians, which is easily carried upon the head, is adopted. These canoes are made of the bark of the white birch (*Betula papyracea*) stretched over light frames of white cedar. A tree is selected of good size and sound bark, and with great care the covering is stripped off in one piece entirely around the tree, and somewhat longer than the intended canoe. This is removed to the frame already set up in the woods, and neatly fitted over it, the proper curvature of the bottom and sides being secured by elastic flat strips of cedar, which are placed inside as ribs, and are attached at each end to the longitudinal pieces which make the gunwales. Particular care is taken that the whole bottom shall be unbroken, without a seam or patch; but up the sides pieces of bark are let in as gussets, or cut out, as the shape of the canoe may require, the edges being sewed together with thongs cut from the roots of the cedar, and pitched over with tar and rosin, or with a pitch prepared from the gum of the balsam fir. By the same means the canoe is kept in repair while it is in use. Birch canoes made of bark stripped in the winter, last better than those made of "summer bark." They are readily distinguished by their darker color, and are much more highly valued. Canoes of this kind are seen of all sizes, from those which may be taken out of the water and carried by children, to those of 80 feet or more in length, in which 10 or 12 Indians may undertake with safety distant expeditions. A canoe of 16 or 18 feet in length may be carried for miles by an Indian without great exertion; and placed again in the water, it will convey him and his squaw and papooses, with all their worldly possessions. Though so unsteady in the water that one slips from under a white man, unaccustomed to them, more suddenly than his feet placed unexpectedly upon smooth ice; the Indian rides fearlessly in it down the foaming rapids, and ventures far out into the salt water, where he may be seen spearing the blackfish and the porpoise, and, though dancing like a feather upon the waves, still managing to lift their bulky, slippery carcasses into his frail bark, with which he returns safely to the shore.

**CANON** (Gr. *kanon*, a rule). Collections of the old Greek authors were called *kanones*, models or classics. As applied to the sacred writings, the word has been used with various shades of meaning. Sometimes it signified merely a catalogue of persons or things belonging to the church, or of books which were used in the church. In a more restricted sense it designated the approved list of all the books appointed to be read in public assemblies of Christians. In subsequent times its significance was narrowed still more, and it was applied only to the collection of divine and inspired writings which are the believer's rule of faith and practice. The canon of the Old Testament was formed gradually in a long course of years. The thought of gather-

ing together all the sacred books seems to have been suggested not before the time of Ezra, at which period the prophetic writings were closed and the historical works completed. It is supposed that the first 2 divisions, the "Law" and the "Prophets," were finished at or soon after the time of Nehemiah, while the 3d division, the "Holy Writings," including the book of Daniel, is believed by many recent critics to have been open some time longer. (See BIBLE.) There is no knowledge respecting the author of the canon, and none respecting the precise date of its composition. The first mention of the collection is made by the son of Sirach, 180 B. C. Josephus speaks of it in its present form, enumerating all the books, and declaring that "during all this time which has passed, no one has dared to add to, to take from, or to change them." We may consider it to be a full collection of the books which the Jews, for reasons of their own, esteemed sacred or inspired. In their regard Moses held a place above all the prophets, being endowed with a peculiar inspiration; of course the writings ascribed to him were placed at the head of the compilation. The prophetic books and the compositions of David may have owed their place to the personal character and reputation of their authors. Others derived their title to inspiration from the nature of their contents, or from their great antiquity. Others again earned a place through the names attached to them, and were venerated as the compositions of Solomon, Ezra, Daniel, or Nehemiah. To whatever date we assign the completion of the canon, whether with the later Jews we suppose it finished after the time of Malachi (about 400 B. C.), or with modern scholars, later than Daniel, it is certain that this date was regarded as the close of the period of inspiration. For this reason, and likewise, probably, for the reason that they were not composed in Hebrew, the productions of later Jewish literature were not kept with the older books in the temple, nor included in the collections of sacred writings used for public reading. These works were held in higher esteem by the Greek Jews than by the Jews of Palestine, and the Alexandrine version, which the former regarded as inspired, had a large supplement containing Eedras, Tobit, Judith, Esther, Wisdom of Solomon, Ecclesiasticus, Baruch, Song of the Three Children, Susannah, Bel and the Dragon, 1, 2, and 3 of Maccabees. These compositions were not, however, even by the Greek Jews, considered as a constituent portion of the canon, but rather as an appendix to it, holier than any vulgar literature, and valuable as containing moral and religious instruction, but still not so peculiarly sacred as to be allowed to stand in the same rank with prophetic writings. The early Christians, being unacquainted with the Hebrew language, availed themselves of the Greek version, and naturally made use of all the books it contained, sometimes quoting the apocryphal books as if they were canonical; but when the subject became one of serious

study, the scholars generally accepted the judgment of the Jews. Still they were quoted with deference, used publicly, and in one or two instances spoken of as authoritative and divine.—The canons of the Greek church closely correspond with each other. The most ancient, that of Melito (A. D. 177), contained all the Jewish books excepting Esther, but excluded the apocrypha. With this catalogue agreed those of Gregory Nazianzen (A. D. 370), and of Amphilochius (A. D. 370). Origen's list includes all the Hebrew books, and the apocryphal Baruch. With him agree Cyril of Jerusalem (348), the council of Laodicea (368), and Epiphanius (368). Athanasius omits Esther, and retains Baruch. The apostolical canon, of uncertain date, admits 8 books of Maccabees, 1 of Judith, and recommends instruction in Ecclesiastics. The catalogues of the Latin church coincide with the Jewish canon, in so far as they exclude no books reckoned as canonical by the latter; but 2 of them admit writings which the Hebrews rejected. Thus the canon of Augustine (A. D. 375) embraces the books Tobit, Judith, Wisdom of Solomon, Ecclesiastics, 1 and 2 Maccabees; and the 3d council of Carthage adopted the same enumeration. Jerome, however, rejected these productions, chiefly, it would seem, because the number of canonical writings must be limited by the number of letters in the Hebrew alphabet. "The church," he said, "reads them for the edification of the people, but not to establish the authority of the doctrines of the church." The Catholic church, following the old Latin version, accepted the books regarded by the early Jews as apocryphal, declaring them to be canonical by a decree of the council of Trent. But the theologians of the reformation, Luther, Carlstadt, Flacius, and John Gerhardt, went back to the Jewish canon, and considered the apocryphal writings as independent and inferior collections. Some Catholic doctors, as Bern. Lamy, have made a distinction between the 1st and the 2d canon, the 1st only being of absolute authority.—The canon of the New Testament was formed upon substantially the same principles as that of the Old. For a century the Hebrew writings were the only Bible the Christians had. The letters of the apostles were publicly read in connection with the ancient Scriptures, and were listened to with the same respect. Gradually such epistles as were addressed to neighboring churches were gathered together in small collections; and later, other works of a historical character, which might recommend themselves by their intrinsic worth or their reputed authorship, were received by such communities as came in possession of them, and were used in public instruction. Many years elapsed before a complete and authorized collection was made. The earliest trace of a collection of New Testament books is found in that which Marcion had in the middle of the 2d century, consisting of 10 epistles of Paul, and a gospel supposed to have been St. Luke's. Half a century later the principal Christian

teachers, Irenæus, Clement of Alexandria, and Tertullian, agreed in receiving 4 Gospels, the Acts of the Apostles, Paul's 13 Epistles, the 1st Epistles of Peter and of John, and the Apocalypse. Respecting the Epistle to the Hebrews, Philemon, Jude, and 2 John, a difference of opinion was raised. At this time, the books were contained in 2 separate collections, one historical, called the Evangel, the other epistolary, called the Apostile. The next stage in the development of the New Testament canon is indicated by the ancient Syriac translation known as the Peshito, which belongs probably to the early part of the 3d century. This contained, in addition to the books acknowledged by Irenæus, Clement, and Tertullian, the Epistle to the Hebrews, and the letter of James; but it omits the Apocalypse, which dogmatic prejudices were bringing into disfavor. An ancient fragment, as old, probably, as the year 200, which was found a century and a half ago in the Ambrosian library at Milan, by Muratori, and is thence called the canon of Muratori, contains a mutilated catalogue of New Testament books then received. In this list are mentioned the Gospels, Acts, 13 Pauline Epistles, 2 Johannean, Jude, and the Apocalypse. James and Hebrews seem not to have been included. 1 Peter is spoken of doubtfully, and words half commendatory are applied to the "Shepherd" of Hermas. The accepted Scriptures of this age were held to be of divine authority. Origen was the first to divide the whole extant literature of the Christians into classes, distinguished as the genuine, the spurious, and the mixed. The genuine were those written by inspired authors, as vouched for by trustworthy tradition; the spurious were those that had no claim to apostolical origin, either from external evidence or internal character; the mixed were such as were of doubtful or contested authority, or had met with only a partial reception. The 4 Gospels, Acts, 13 Epistles of Paul, 1 Peter, 1 John, probably also the Apocalypse, he held to be indisputably genuine and sacred. In respect to Hebrews, James, 2 Peter, 2 and 3 John, and Jude, his mind was in a state of greater or less uncertainty. He appears to waver also in his judgment upon the Epistle of Barnabas, calling it a catholic epistle, and upon the Shepherd of Hermas, which, in one passage, he declares to be in his opinion "divinely inspired,"—so fluctuating in that age was the line that divided the canonical from the apocryphal writings. Origen's opinion, however, was too individual to be received as representing the persuasion of the church. Eusebius the historian, in the early part of the 4th century, prepared a catalogue of the New Testament Scriptures, based upon carefully studied traditions, both oral and written. In his classification the Gospels, Acts, 14 Epistles of Paul, and the first Epistles of John and Peter, are ranked as genuine and universally acknowledged productions of apostles. Among disputed books he mentions the Epistles of James and Jude, 2 Peter, 2 and 3 John, which he

designates by the title of catholic Epistles. Other writings, now by all deemed apocryphal, he counts as spurious. To the Epistle to the Hebrews, and to the Apocalypse, Eusebius hesitates to assign a place, being himself inclined, it would seem, to receive them into the first class as genuine Scriptures, but deferring to the popular sentiment, which was against them. The canons of the Greek church, that of Laodicea (A. D. 360-'9), that of Cyril (A. D. 348), that of Athanasius (A. D. 326), and that of Gregory Nazianzen (A. D. 370), agree in accepting all the books that compose our present collection, except the Apocalypse. Athanasius alone, and perhaps Cyril, included this. The catholic Epistles were by this time generally received, though not with entire cordiality. It is clear that the canon of the Greek church was not absolutely closed at the end of the 4th century. The Latin church, which opened the canon of the Old Testament to the admission of the apocryphal books, enlarged the canon of the New Testament by the reception of the Epistle to the Hebrews and the Apocalypse, and thus completing it, pronounced it closed. The council of Hippo decreed (A. D. 393) that the books of the New Testament be 4 Gospels, Acts, 13 Epistles of Paul, 1 to the Hebrews, 2 of Peter, 3 of John, 1 of James, 1 of Jude, and the Apocalypse of John. Jerome, speaking of Hebrews, says: "It is no matter whose it is, for it is the production of an ecclesiastical man, and is daily distinguished by being read in the churches." For the same reason he would admit the Apocalypse. The council of Carthage repeated almost word for word, in the year 397, the rule adopted by that of Hippo, only ranking Hebrews at once among Paul's 14 epistles. A few years later this catalogue of the sacred books was confirmed by a decree from Pope Innocent I., which may be regarded as deciding finally the canon of the Latin church. There were still differences of opinion as to the Epistle to the Hebrews and the 2d and 3d of John; but there was no room for change. The catalogue was accepted up to the period of the reformation, notwithstanding the objections of Cosmas, 535, Junilius, 550, Isidore of Seville, 636, and Nicephorus of Constantinople, 828; notwithstanding, too, the criticism of John of Damascus, who wished to reckon the Apostolical Canons among the New Testament books, and the judgment of the synod of Aix, 789, which would exclude the Apocalypse. The chiefs of the reformation in their writings, and the two Protestant churches in their symbols, in defining which the canonical Scriptures were, inclined to follow what they assumed to be the testimony of the Holy Spirit in their hearts rather than the consent of the church as expressed in ecclesiastical decrees. Luther raised a doctrinal test, and applied it to the exclusion of Hebrews, James, Jude, and the Apocalypse. But his practice was peculiar to himself. Since his time Protestant theologians have paid much attention to critical studies, and have distinguished themselves by efforts to establish the

genuineness of the New Testament writings upon grounds purely historical. The council of Trent, 1545, merely confirmed the canon of Hippo and Carthage, condemned all dissent, and set the seal of œcumenical authority upon the received collection. This mandate of Rome had its effect upon the Greek church, which forthwith canonized the Old Testament apocrypha, and soon laid aside its doubts respecting the Catholic Epistles and the Apocalypse. Thus the great body of Christians, Catholic and Protestant, east and west, with the above exceptions, accepted the same sacred Scriptures. Small sections among the Protestants have dissented. The Socinians, in the 16th century, adopting methods of investigation severely critical, have thrown doubts upon several writings whose genuineness had been left unquestioned for centuries. The same process has been continued to the present day by theologians of different schools, especially in Germany. The Swedenborgians, discarding critical methods entirely, and receiving no dogmatical writing as inspired or canonical, set summarily aside the decrees of councils and the verdicts of scholars, and hold that the 4 Gospels and the Apocalypse are the only Scriptures of the New Testament written under the full influence of the Holy Spirit. They also deny inspiration to the purely narrative and dogmatic writings of the Old Testament, Chronicles, Ezra, Nehemiah, Esther, and the books of Solomon; finding a broad line of distinction between these and the others in their doctrine of correspondences.

CANON, an ecclesiastical dignitary who possesses a prebend, or revenue allotted for the performance of divine service in a cathedral or collegiate church. Canons were originally priests who lived in community, appointed to assist the bishop in his duties, and supported by the revenues of the bishopric.—**SECULAR CANONS** are those who, in progress of time, have left off the custom prevalent in monasteries of living a community life, and have the privilege of enjoying the returns of their respective benefices. The obligations of the canons are contained under the 3 following heads: 1, the duty of residing in the place where the church they belong to is situated; 2, assisting at the canonical offices which are celebrated in the church; and 3, attending the meeting of the chapter at the appointed times. They cannot be absent from their benefices for a longer period than 3 months, and are obliged to sing or recite their office in choir. In their collective capacity they are called a chapter, and form the council of the bishop. In each chapter there are dignitaries. The name was originally applied to all the clergy, but was afterward confined to those who were connected with the cathedral church, or to specially privileged churches.

CANON, in music, a species of vocal composition in several parts, in the form of a perpetual fugue, in which the voices begin at intervals, one after the other, so that each voice sings the strain of the preceding one and all



sing different portions of the melody at the same time. It differs from the ordinary fugue in requiring that the subject be repeated by each part.

CANON, a Spanish word, signifying a tube, flue, or pipe, now in common use in the territories bordering the Mexican states, to designate the deep ravines, or gulches, worn in the hills and mountains by descending torrents of water.

CANON LAW, the public and general code of laws of the Catholic church. This church claims to be a perfect visible society, containing within herself all that is necessary for a complete and independent organization. Hence she has her own rulers, rights, and laws. Some of these laws given by Christ himself or by the apostles in his name, are held to be immutable; others have been promulgated by the ordinary ecclesiastical authority, and can be modified or abrogated by the power whence they derive their force. The discipline or practice of the church is therefore partly unchangeable and partly changeable. The changeable discipline, deriving its origin from the ordinary ecclesiastical power, has been different in various times and places. An immense organization extended over the face of the earth must of necessity, while retaining on all essential points the same practice and laws, admit in minor things of those local differences which are required by circumstances. Hence, beside the general law of the church, there are in every particular country peculiar and local rights, customs, and practices, which form what is called the code of particular or national churches. These, however, are subject to the supreme authority, which can at any time annul them, should such a course be judged expedient or necessary. Thus, beside the general law of the church, Roman Catholics in the United States are regulated by the decrees of the councils of Baltimore and of the provincial councils held in the different provinces which have been approved of by the competent authority.—There is also another source of difference in ecclesiastical polity. From the very beginning the eastern and western churches, although agreeing in the same faith and in the observance of the same moral law, and looking upon each other as integral portions of the same church, have yet observed on many points a totally different ecclesiastical discipline. This state of things continues to the present day, and the oriental churches in communion with Rome retain their own liturgy, and their peculiar observances. Hence, the canon law of the Latin or western church is different in many points from that of the Greek or eastern.—The divisions of ecclesiastical law can be marked as follows: 1. The general law of the church, binding all her subjects of all nations and countries. 2. Laws peculiar either to the oriental or Latin church. 3. Laws that are observed by only one particular or national church, belonging to either of these two divisions. 4. Diocesan regulations which have no force out of the bishop-

ric for which they are made.—Canon law comprises the general laws for either of the two churches, eastern or western. Thus there is the canon law of the oriental and of the Latin church. To the knowledge of this the canonist must unite an acquaintance with the particular laws and customs of his own nation or province, beside that of the statutes of the diocese to which he belongs, in order to be able to apply his general rules and principles to the practical cases which may fall under his cognizance. The authority whence ecclesiastical laws derive their force, is held by Catholics to be vested primarily and principally in the pope as the vicar of Christ. General councils also possess the same authority. These are composed of all or of the greater number of the bishops of the church. The decrees of a legitimate general council, that is, one presided over by the pope either personally or through his representative, when ratified by the same authority, are binding over the whole church. These are the two founts of authority from which all general laws derive their vigor. Patriarchs and provincial councils legislate merely for the portion of the church under their jurisdiction, their legislation being subject to the approbation or rejection of the pope. Bishops have the right to make laws or statutes for their own dioceses; these are sometimes promulgated in diocesan synods, which are composed of the principal priests of the diocese.—As the discipline of the church has not always been the same, but has been and is different in different times and places, so, too, canon law has not always been uniform. Many regulations which once were of force have been subsequently modified or totally abrogated. Hence the chief difficulty in the study of canon law is to discern between that which is in force and that which has gone into disuse.—The laws of the church have been for the most part embodied in collections. These have naturally been modified as the laws themselves have suffered changes. The history of canon law is a narrative of these different modifications. For some time after the death of the apostles, there was in all probability no written collection of laws. The faithful who lived during this period had vividly impressed on their minds the decrees and teachings of those who had conversed with the Lord. But in the course of time, unruly and rebellious spirits began to manifest themselves, and discipline suffered many serious violations. As crimes occurred, decrees were enacted either to punish the transgression or prevent its recurrence in the future. These decrees generally originated in the locality in which the crime had been committed, and by degrees, through the force of similar circumstances, were adopted throughout the whole church. Thus, in the course of two centuries, many new regulations had been gradually introduced, and the primitive discipline had been more or less modified. This introduced the necessity of making a collection of these new laws, so that all might know their exact

import, and thus uniformity, at least on the leading points of discipline, might be secured. Hence the first collection we meet with is commonly supposed to have been promulgated either toward the end of the 2d or the beginning of the 3d century. It is called that of the *Canones Apostolici*, or "Apostolical Canons." This name was given because these laws were represented as having been promulgated by the apostles. This, however, is not true of them, at least as they appear in this collection; for they bear the evidences of a development of organization not yet existing in the apostolic times. Most probably, during the 2d century, the rules given by the apostles for the guidance of the faithful began to be committed to writing. By degrees new regulations were added to them, and the collection thus gradually assumed its present form, retaining the name to which, in a certain sense, it was originally entitled. Whatever may have been its origin, it represents faithfully the discipline of the eastern church toward the latter part of the 2d and commencement of the 3d century. All, however, did not agree as to the number of the canons; the Roman church recognized only the 50 which had been translated into Latin by Dionysius Exiguus; the eastern church, after the council in Trullo, in the 6th century, received 85.—The work called *Constitutiones Apostolicæ*, or "Apostolical Constitutions," is intimately connected with the collection of canons. It is proved by Beveridge that it appeared toward the end of the 3d century. It does not throw any new light on the discipline of that period, as it agrees on all points with the canons.—The next collection that we meet with in the East is that which was produced in the council of Chalcedon, in the 5th century. It was called the *Codex Canonum*. It seems to have contained originally canons enacted in the general council of Nice, and in those of Ancyra, Neo-Cæsarea, and Gangra. These 3 councils, although not œcumenical or general ones, had obtained great authority throughout the whole eastern church, and their enactments were universally adopted. In course of time the *Codex* was enlarged by the addition of the canons of a council held at Antioch, and of those of the council of Chalcedon itself, and lastly of those adopted in the next general council held at Constantinople. These were the principal collections of canon law in the early centuries.—In the West there seems to have been no collection of this sort made before the council of Nice. Custom, the decrees of the bishops of Rome, which were issued as occasion required, and those of particular synods, were the basis of ecclesiastical legislation during the first 3 centuries. The canons promulgated at Nice were translated into Latin immediately after the celebration of the council, and were observed in the western church, together with those enacted a short time afterward at Sardica. After some time 2 Latin translations appeared of the *Codex* which was used at Chalcedon; one was called *Isidoriana*, or of Isidore; the other

*prisca*, or ancient. In reality, then, up to the 6th century there was no regular collection of ecclesiastical laws in the western church. This want was at that period supplied by Dionysius Exiguus, a learned monk, who published a celebrated collection, which has ever since borne his name. It contained the principal points of the legislation of both branches of the church: the 30 canons of the apostles, then those of Nice, Ancyra, Neo-Cæsarea, Gangra, Antioch, Laodicea, Constantinople, and Chalcedon, translated from the Greek; the 21 canons of Sardica, from the Latin original, together with 188 enacted in different councils of Africa. These formed the 1st part. The 2d embraced the decretals of the popes Siricius, Innocent I., Zosimus, Boniface I., Celestine, Leo the Great, Gelasius, and Anastasius II. These decretals were letters sent by the popes to different bishops or churches, containing those decrees which they deemed necessary for the maintenance of discipline and the good of religion. These, as is evident, formed no unimportant part of church law. To the above mentioned were afterward added the decretals of the popes Hilarius, Felix II., Simplicius, Hormisdas, Symmachus, and Gregory II. The collection of Dionysius thus augmented was presented in the 8th century to Charlemagne, by Pope Adrian I., when the former came to Rome. Adrian did not give it any new public authority; yet from the fact of his having presented it, and from the *quasi* sanction thereby bestowed, it acquired great importance, and was called emphatically the *Codex Canonum*, or code of canons. Such were the principal documents through which access could be had to the knowledge of ecclesiastical legislation, during the first 9 centuries of the Christian era.—Thus far the science of ecclesiastical legislation had advanced in a regular and more or less uniform way. The churchmen had copied the forms of the old civil lawyers, and many made ecclesiastical polity the study of their lives. With the destruction of the western empire, and the universal subversion of all the ancient landmarks of civilization and learning, the church law had to undergo some of the calamities of the age. The barbaric rulers often brought charges against leading ecclesiastics, either for the purpose of confiscating the property of the church, or of revenging the condemnation of their vices; and as the knowledge of canon law had shared in the decline of all science, the churchmen were left unprotected, from a want of acquaintance with laws which would have extricated them from their difficulties. A new collection was therefore required, and did in fact appear, but unfortunately the real erudition of the work was tainted by an inexcusable spirit of imposture on the part of the author. He gave himself a feigned name, that of Isidore Mercator (merchant), or Peccator (sinner). It is not very clearly known who he really was. The most probable opinion seems to be that his real name was Benedictus Levita, or the Deacon. If this be

true, Isidore lived at Ments in the 9th century. The documents of which this collection was composed can be divided into 3 classes. There were some perfectly genuine, and attributed to their real authors; next, others substantially so, but published under the name of popes or councils to whom they did not belong; others, again, were altogether spurious, and perhaps invented by Isidore himself. Yet even this last class contained only in legal form what already existed in the discipline and immunities of the church. All the evil done by Isidore was done to erudition and history, not to the discipline of the church, which remained the same as before. The English bishop, Beveridge, after much erudite and patient toil, discovered that all the decrees or letters invented by the impostor were in reality nothing but tissues of passages selected from the canons of councils, epistles of popes, and works of ecclesiastical writers, especially of the 5th and 6th centuries. The age in which Isidore lived was not one in which a historical fraud was likely to be discovered. He was everywhere held in honor, till on the revival of letters the new light shed upon this branch of criticism led at first to doubts as to the genuineness of parts of his work, and afterward to the discovery of his imposture.—During this time the collection of John Scholasticus, who flourished in the 6th century, was the principal one in the East. Photius revised it, and added many important laws, and it yet remains the basis of the legislation of the Greek church. Up to the 13th century the principal collections in the West were those of Burchard, Ivo, and Cardinal Deusdedit. They added nothing new to the preceding collections; the troublesome times in which they lived did not afford much liberty for new legislation, or leisure for the study of ancient documents. At last, however, the light dawned, sciences and literature began to be cultivated, and Europe again appreciated the benefits of mental improvement. To the 12th and 13th centuries belongs the honor of having initiated this better state of things; then commenced in reality the revival of letters and civilization. Law was one of the sciences which seemed to meet with most favor in the new order, and formed one of the most important branches of study in the rising universities, especially in that of Bologna. The civil law of the Roman empire became the subject of profound and toilsome investigation. It was natural that in the mediæval society on which the church exerted so powerful an influence, her legislation should be an object of the research of the student, and that canon law should thus become a science to which persons were to devote themselves exclusively. The new state of affairs called for a new collection, which could be used as a class book. Gratian, a Benedictine monk, a native of Tuscan, undertook the task, and published in 1151 his *Concordantia Discordantium Canonum*. This was composed of various texts of Scripture, of the *Canones Apostolici*, of the decrees of general and partic-

ular councils, of the decretal letters of popes, of extracts from the writings of the fathers, and of the enactments of the old civil law of the empire, or of the Frank kings. It received afterward the title of *Decretum*, by which name it is now known. It labors of course under the great defect of its time, want of correct historical knowledge and critical acumen. It contains many spurious documents, which were, for the most part, taken from the collection of Isidore. It cannot therefore be relied upon, nor has it received any public approbation of the church. A spurious or false canon receives no new authority from the circumstance of its having been incorporated in the *Decretum*. With all its faults, however, it is a truly great, nay, a wonderful work, considering the age in which it appeared. Gratian is the father of the sciences of canon law, the bold pioneer, who had the courage to penetrate this pathless wilderness of decrees, canons, decretals, decisions, and instructions, to mark out some well-defined points, and to establish certain signs, to guide posterity in their way.—In more recent times, when general attention had been called to the inaccuracies of the *Decretum*, many attempts have been made to correct it. Antoninus Augustinus, a learned canonist of the 16th century, devoted a great deal of time and pains to this object. A commission was appointed by Pope Pius IV. to attend to this important work, which was accomplished during the pontificate of Gregory XIII. The persons composing it are commonly known under the name of Roman correctors.—After Gratian many learned canonists either published new collections, or improved or commented on those already existing. Among these were Bernard of Pavia, Gilbert and Bernard of Compostella. However, their works lost almost all their importance on the publication of the collection of Pope Gregory IX., which introduced a new era in the science of church legislation. Gregory has been truly styled the Justinian of canon law. He saw the necessity of a more authentic work than that of Gratian, of one which, by receiving the approval of the legitimate authority, should become the public code of the church. He intrusted the execution of this idea to St. Raymond de Pennafort, a learned Dominican friar. He faithfully fulfilled his trust, and in 1234 promulgated the celebrated 5 books of decretals. These embraced all the laws of the church then in force, containing those texts of Scripture which referred to disciplinary matters; the decretal letters of the popes, from Gregory the Great to Gregory IX.; the *Canones Apostolici*; the decrees of the councils, from that of Antioch to the 4th general one of Lateran; together with many passages of the fathers, which embodied generally received customs or salutary regulations. In publishing this collection, Gregory enhanced its value by giving it the approbation of the holy see, and commanding it to be received as authentic in all ecclesiastical tribunals, and in all schools of

law. Thus, for the first time, was given to the world a code of general church law, stamped with the seal of ecclesiastical approbation.—Boniface VIII. added, in the 4th year of his pontificate, another book to the 5 of Gregory IX. It contained the canons of the second general council of Lyons, together with the different decrees issued by himself. It was called the 6th book of decretals, and received the same authenticity that had been given to the others. Such, too, was the collection made by Clement V. shortly afterward, which embraced various decrees of this pope, together with those of the general council of Vienna. These canons commonly receive the name of Clementine, though originally called the 7th book of decretals. Next came 2 collections, known under the title of *Extravagantes*, laws, as it were, wandering outside of the regular code. The first contains the decrees of John XXII, the other those of the popes from Urban IV. to Sixtus IV. These different collections, beginning with that of Gregory IX., form what is called the *jus antiquum*, or ancient law, in contradistinction to the *jus recens*, or modern law.—After the great schism of the West, the general council of Constance, convoked to put an end to that schism, passed decrees for the extirpation of abuses, and recommended the pontiffs to prosecute the good work with vigor; but the many and incessant troubles that distracted the attention of Rome, rendered this extremely difficult. When Luther raised the standard of private judgment, and set at naught the authority of the church, what the pontiffs had so long desired at last became feasible; a general council was convoked, and set to work in good earnest to reform the Catholic body. To this effect many new enactments had to be adopted, and the wise disciplinary decrees of the council of Trent form the basis and principal part of modern canon law. Beside these, there are various bulls and briefs of the popes issued for the most part to execute or to explain more fully the canons of Trent. These are precisely the same documents that were anciently styled decretals. They are to be found in the *Bullarium*, an immense work, first commenced by a Roman lawyer, Laertius Oherubini. He began with Leo the Great, and intended to bring his work down to Sixtus V., but died before completing it. His son, Angelo Maria, however, finished it. There is also the *Bullarium Magnum*, published by Jerome Mainardi, containing the papal letters or bulls, from those of Leo the Great to those of Clement XII. There is another one containing the bulls of Clement XI., and another again embracing those of Benedict XIV. The *Bullarium* is yet constantly published, and now has been brought down to the first years of the reign of Gregory XVI.—The rules of the Roman chancery form also a part of modern canon law. These are 71 in number, and are intended to regulate the business of this important office, to which are confided

the many and weighty questions relative to ecclesiastical benefices. These rules were first established by John XXII. They are in force only during the lifetime of each pontiff, being adopted by him at the beginning of his reign. The decisions of the congregations of cardinals enter also into the present code. They are binding for the whole church when given in answer to general questions, or when especially declared to be so. Lastly, the *concordats* with different princes or governments, which are made in order to regulate those modifications of general legislation that the exigencies of the times or other circumstances may demand, are a prominent feature in the present state of ecclesiastical polity, and are gradually effecting important changes, by making what was before but a solitary exception to become an almost universal rule.—This is the history of canon law in its general bearings on the Catholic church. We have refrained from mentioning those details which have reference to particular provinces or nations. Canon law, in its present state, is almost as voluminous as was the ancient Roman code. While one small volume in octavo contains all the dogmatical decrees on matters of faith, ponderous folios are filled with disciplinary decrees. This is inevitable. A dogmatical decree remains always in force, is never modified or repealed; discipline necessarily undergoes modifications and changes.—The canon law is used, under certain restrictions, in the ecclesiastical courts of England and the courts of the 2 universities.

CANONICA, LUIGI DELLA, president of the public works of Lombardy, born toward the middle of the 18th century, died in Milan in 1844. He was as much distinguished for his genius as an architect as for his public-spirited beneficence. Among his principal achievements are the Palazzo Bellotti and his own sumptuous residence, the Casa Canonica, the theatres Ré, Carcano, and Filodrammatico at Milan, 2 theatres at Brescia and Mantua, and the new theatre at Parma, which, after his design, was built by Bettoli. His most celebrated work is the amphitheatre della Porta Vercellina at Milan, begun in 1805 by order of Napoleon. His labors brought him not only fame, but wealth to the amount of \$700,000, of which he bequeathed \$17,000 to the academy of Milan, the interest to be used for the education of poor artists, and \$85,000 to the primary schools of Lombardy.

CANONICAL HOURS, the different portions of the breviary or divine office in the Roman Catholic and Greek churches, arranged for use at certain hours of the day. According to the original custom, still preserved in some strict monastic orders, matins and lauds should be recited soon after midnight, prime early in the morning, tierce, sext, and none at 9, 12, and 3, vespers late in the afternoon, and compline in the evening. The usual custom is, however, at present, both in the public singing or recitation of the office in choir, and in the pri-

vate reading of it, to say matins and lauds on the preceding evening, the little hours at some convenient time in the morning, and vespers and compline at any time in the afternoon. The office is obligatory on clergymen in the major orders, the members of monastic communities, and those who hold benefices. It is chiefly composed of the psalter, and lessons from the Scriptures and the acts of the saints and martyrs, with hymns, versicles, and prayers interspersed. A great diversity of offices have been and are in use. The one most generally used in the Catholic church of the West is the Roman breviary.

CANONICUS, an Indian chief of the Narraganset tribe, born about 1565, died June 4, 1647, was the firm friend of the English, and especially of Roger Williams, whom, to use the words of the latter, he loved "as his own son to his last gasp." From him Williams obtained, March 24, 1638, the grant of land for his settlement of the future state of Rhode Island. During his life the Narragansets were engaged in several Indian wars, but remained at peace with the white men. Many years after his death, however, under the famous King Philip, they became involved in a war with the English, which resulted in their extermination.

CANONICUT, a small island in Narraganset bay, in the state of Rhode Island. It is fertile, and contains the town of Jamestown. On the southern extremity, which is called Beaver Tail, is a lighthouse. The length of the island is about 8 miles, and its average breadth 1.

CANONIZATION, in the Roman Catholic church, a solemn declaration that a beatified servant of God possesses a special glory in heaven, on account of which he is proposed to the special veneration of the whole church. After the beatification of the deceased has taken place, the principal condition which is exacted, in order to go on with the process of canonization, is that the newly beatified should perform 2 miracles, which must stand the test of a most rigorous examination and be judicially approved by the competent tribunal. After this, several consultations are held, the pope issues the decree of canonization, and a magnificent ceremony takes place at St. Peter's church, at which the pope officiates in person.

CANONSBURG, a post borough of Washington co., Pa. It is the seat of Jefferson college, a flourishing institution with 8 professors, 197 students, and a library of 10,000 vols. Pop. 627.

CANOPPI, ANTONIO, an Italian scene-painter, born in 1778, died in St. Petersburg in 1832. He received his first education from his father, who was employed as civil engineer by the duke of Modena, and after occupying himself for some time with fresco-painting, he was subsequently employed as scene-painter in Venice and Mantua. Compelled to resort to flight at the time of the French invasion, he first betook himself to Vienna and afterward to Moscow, where he was engaged in the decoration

of many palaces, which, however, were burnt in the great fire of 1812. From that time until his death he was engaged as scene-painter of the imperial theatre of St. Petersburg. His most admired efforts in that branch of art were his architectural scenes for Mozart's "Magic Flute," and for "Semiramis."

CANOPUS, a star of the first magnitude in the constellation *Argo Navis*. It is in the end of the rudder, and is 87° from the S. pole. It is therefore a southern circumpolar star, and is never visible in the latitude of the northern states of the Union.

CANOPUS, or CANOBUS, in Egyptian mythology, a water god, represented on vessels of a spherical shape. These vessels were used by the ancient Egyptians to keep the water of the Nile in good drinking condition. The worship of Canopus was superseded under the first Ptolemy by that of Serapis—a Greek inscription in honor of Serapis at Canopus having been discovered by Mr. Hamilton amid the ruins of Alexandria.—In ancient geography, CANOPTA was one of the most remarkable towns of lower Egypt, near the most western mouth of the Nile. The name of the town is variously ascribed to the divinity of the same name and to Canopus, or Canobus, the helmsman of Menelampus, who died in Egypt of the bite of a serpent, after his return from Troy, and who was buried on the site of the town.

CANOPY (Gr. *κανοπιον*; from *κανοψ*, a gnat), a net spread over a bed to preserve the sleeper from insects. In architecture, an ornamental projection over doors, windows, &c.; also, a hood or covering over thrones, niches, tombs, &c. Canopies are also borne over the head in processions.

CANOSA (anc. *Canusium*), a town of Naples, province of Terra di Bari, S. W. of Barletta; pop. about 8,000. It contains a cathedral of the 6th century, the remains of a gateway near the river Ofanto, of a splendid amphitheatre, and the tomb of Bohemond, prince of Antioch. It was subdued by the Romans 818 B. C., until which time it had been hostile to Rome ever since the Samnite war. It is frequently mentioned in ancient classic history, and is spoken of by Horace in the journey to Brundisium. Herodes Atticus constructed an aqueduct to supply it with good water. The Romans called the inhabitants *bilingues*, as they spoke both Greek and Oscan. The mule drivers of Canusium were noted for their skill, and were always selected by Nero as his charioteers. The remains of the Roman army after the defeat at Canus, in the 2d Punic war, took refuge in Canusium. Canusium was on the direct route from Brundisium (Brindisi) to Rome. Remarkable ancient tombs discovered in 1803, in the vicinity of Canosa, and the contents sent to the museum of Naples, were described by Millin (Paris, 1818). They generally contain empty vases.

CANOSSA, a small town near Reggio, in the duchy of Modena, Italy. It contains a castle in which the emperor Henry IV. performed

penance before Pope Gregory VII. in 1077. Pop. 1,900.

CANOT, THEODORE, an adventurer and slave trader, born at Florence, about 1807. His father was a captain and paymaster in the French army; his mother a native of Piedmont. After receiving an ordinary school education he resolved to follow the sea, and made his first voyage in 1819, in the American ship *Galatea*, of Boston, from Leghorn to Calcutta. He visited Boston, sailed to various parts of the world, was shipwrecked near Ostend, and again on the coast of Cuba, where he fell into the hands of a gang of pirates, one of whom claimed to be his uncle, befriended him for some time, and finally sent him to an Italian grocer at Regla, near Havana, who was secretly concerned in the African slave trade. In a vessel owned by this man, carrying a crew of 21 scamps of mixed race, Canot made his first voyage to Africa in 1826, landing at the slave factory of Bangalang, on the Rio Pongo, Senegambia. After quelling a mutiny on board and helping to stow away 108 slaves under 15 years of age, in a hold 22 inches high, the young adventurer entered the service of the owner of the factory, a mulatto named Ormond, but commonly called "Mingo John," whom he attended in the capacity of secretary and agent, for 3 or 4 months. In 1827 his old friend, the grocer of Regla, consigned to him a slave schooner, which he succeeded in freighting with 217 negroes, receiving \$5,565 commission, while the Cuban owners realized from their sale a clear profit of \$41,488. Canot soon became a favorite with the native chiefs, whose proposals of matrimonial alliance were exceedingly embarrassing. He visited various parts of the neighboring country, improving every opportunity to study the workings of the trade in which he had determined to engage, and collecting by the aid of the African princes a stock of slaves for his newly established depot at Kambia near Bangalang. Another vessel was sent out to him from Cuba, the captain of which died soon after arriving. Canot resolved to take his place in command, and accordingly sailed for Regla, but was soon captured by 2 British cruisers after a hard fight. By the assistance of the surgeon and steward of one of the cruisers he made his escape in a small boat with one companion, and reached the Rio Pongo. In May, 1828, his factory and goods were destroyed by fire. He afterward purchased a vessel at Sierra Leone, in which with a cargo of slaves wrested from a trader in the Rio Nunez, he sailed to Cuba, where he remained 8 months. Three more expeditions soon followed; in the first he lost 800 slaves by small pox; in the last he was taken by the French and condemned to 10 years confinement in the prison of Brest, in France, but after about 1 year's durance was pardoned by Louis Philippe. Resolved still to pursue his dangerous occupation, he returned to Africa, and was the pioneer of the slave traffic at New Sestros, an independent principality governed by a Bassa

chief. After meeting with various adventures here in his expeditions among the surrounding tribes, we hear of him in 1839 on a pleasure trip to England. He returned to New Sestros and in 1840 shipped to Cuba 749 slaves. He now resolved to abandon his illicit course, entered into partnership with Mr. Geo. O. Redman, a London merchant, and obtaining from an African chief a valuable grant of land at Cape Mount, established there in 1841 a trading and farming settlement under the name of New Florence. He made a trip to New York some time afterward. In March, 1847, New Florence was destroyed by the British, who suspected it to be a slave station, and Canot subsequently removed to South America, where he engaged in legitimate commerce. He resided for some time in Baltimore, U. S., and finally received from Napoleon III. an office in one of the French colonies in Oceanica. A narrative of his adventures, written from his own notes and conversation by Mr. Brantz Mayer, was published in New York, in 1854.

CANOVA, ANTONIO, an Italian sculptor, born Nov. 1, 1757, at Possagno, in the province of Treviso, died in Venice, Oct. 12, 1822. He sprang from an ancient family, who, for generations past, had followed the trade of cutting the stones which abound in the hills of Asolano and the adjoining country. Young Antonio was put to the same trade. In his 9th year he executed 2 small shrines of Carrara marble, and the remarkable aptitude which he displayed arrested the attention of Giovanni Falieri, a Venetian senator, who placed him, in 1771, under the instruction of a Bassano sculptor, of the name of Torretti, who, in 1773, removed to Venice. Here Canova surprised his friends in 1774, by the execution of the statues of Orpheus and Eurydice. These were well received, and followed by the group of *Dædalus* and *Icarus*, and several other works of art, which enabled the artist to prosecute his studies in Rome, Falieri having obtained for him a pension from the Venetian government of \$100 a year for 8 years. He visited Naples, Herculaneum, and Pompeii, and, taking every opportunity of improving his knowledge of the works of antiquity, he soon produced his great statue in marble of "Apollo crowning himself with Laurel," but his reputation was not firmly established until the completion of his "Theseus vanquishing the Minotaur." His next undertaking was a monument in honor of Clement XIV.; he obtained the permission of his native country to settle permanently at Rome, where after 4 years of arduous labor, the monument was opened to public inspection in 1787. By 1792 he had completed another cenotaph to the memory of Clement XIII.; and gradually he became so overwhelmed with commissions, that he had to extend his studio, which soon almost covered the whole street. Among the many works which appeared from his chisel, from 1795 to 1797, his groups of *Cupid* and *Psyche* standing, and of *Venus* and *Adonis*, are

the most celebrated. During the revolution of 1798 he visited Germany, and on his return retired to his native village, where he devoted himself to painting, his picture of the "Descent from the Cross" being especially noteworthy. On his return to Rome, he produced his "Perseus with the Head of Medusa," which by public decree was placed in one of the *stansi* of the Vatican. In 1802 Napoleon invited him to Paris, where he modelled a colossal statue of the emperor, which was not completed before 1808, and afterward passed into the possession of the duke of Wellington. In 1805 he executed his "Venus Victorious," and in the same year he completed his monument of Christina, archduchess of Austria, erected in the church of the Angustines at Vienna. This is considered the master-work of his monumental productions. He revisited Paris twice, in 1810, when he modelled the bust of Marie Louise, and executed the statue of Letitia Bonaparte, for which in 1819 the duke of Devonshire paid \$6,500; and in 1815, when he removed to Italy some of the works of art which had been carried to Paris by Napoleon. His reception at Rome was brilliant; the pope inscribed his name in the golden volume of the capital, and conferred upon him the title of marchese d'Ischia, and a pension of about \$3,000. For his native village, Possagno, he designed a temple after the model of the Parthenon of Athens and the Pantheon of Rome, of which the foundation-stone was laid July 11, 1819. He executed the bass-reliefs, and a great altar-piece for the interior, which he had begun 20 years before; but his earthly career was drawing to its close. Some of his most popular works were wrought by him shortly before his death, as the group of Mars and Venus, the colossal figure of Pius VI., the Pieta, the St. John, the recumbent Magdalen, &c. Among his later works is a Washington, of colossal size, in a sitting attitude, now in the state house at Raleigh, N. C. In May, 1822, he paid a visit to Naples, where he had undertaken an equestrian statue for the king. On his return, his health became more and more impaired, and he died shortly afterward at Venice. His remains were deposited in the church of Possagno. The same monument which he had designed for Titian, was dedicated to his memory in 1827, in the church de' Frati of Venice, and another monument to his honor was raised by Pope Leo XII., in 1838, in the library of the capitol.

CANOVAI, STANISLAO, an Italian ecclesiastic and historian, born in Florence, March 27, 1740, died there Nov. 17, 1811. Having taken holy orders, he officiated afterward as professor of mathematics at Cortona. In 1788, as a member of the academy of antiquities, he contended for the prize which was offered for an essay on Americus Vesputius. He opposed the common opinion that Columbus was the first discoverer of the new world, claiming that Vesputius one year before him had touched upon the northern part of the continent and had landed in Brazil. His paper gained the prize, but produced much

controversy. He published an Italian translation of Gardiner's tables of logarithms and other writings, and enjoyed also the reputation of a worthy ecclesiastic. When Alfieri was dying, Canovai waited on him to minister to his spiritual wants.

CANROBERT, FRANÇOIS CÉTAINE DE, a French general, born in Brittany in 1809. Belonging to a good family, he was, in 1836, admitted to the military school of St. Cyr. He nevertheless enlisted afterward as a private soldier; but within 4 years reached the rank of sub-lieutenant. In 1835 he went to Africa, and served as first lieutenant in the expedition to Mascara. Being promoted to a captaincy, he distinguished himself in 1837 at the storming of Constantine, and received the decoration of the legion of honor. He displayed skill and courage in many encounters with the Arabs, was made a major in 1842, and lieutenant-colonel in 1846. With the 64th regiment of the line, he marched against the formidable Bou Maza, forced several tribes of the lower Dabra to submission, and was made a colonel in 1847. Since the revolution of Feb. 1848, his advancement has been rapid. An expedition in 1848 against Ahmed Sghir, bey of Constantine, who had excited several tribes to rebellion, and another in 1849 against the Kabyles, assured his promotion to the rank of brigadier-general; and a successful inroad on the Arabs of Nara, whose strongholds he destroyed, added greatly to his popularity among the soldiers, while it procured for him the appointment of aide-de-camp to Louis Napoleon. After the *coup d'état* he was one of the commissioners sent to the departments in order to expedite the prosecution of those who had attempted to resist that act. In 1853 he was appointed general of division, and in 1854, upon the formation of the army of the east, he was placed in command of the 1st division, set out, March 18, 1854, for the Crimea, and was slightly wounded in the battle of the Alma. The emperor having invested him secretly with the supreme command in the case of an emergency, he assumed that position after the resignation of St. Arnaud, and defeated the Russians at Inkerman; but shrinking from the responsibilities of a general-in-chief, he resigned his command to Pelissier, May 16, 1855. Soon after, he returned to France, where he was received with great distinction by the emperor, who sent him on a mission to Denmark and Sweden, and conferred upon him the military medal of Crimea, and the rank of marshal of France. From the British queen he also received the grand cross of the bath. In 1858 he received the command of the 3d of the 5 military provinces into which France was divided by the imperial government.

CANSO, or CANSEAU, GUT OF, the passage between Nova Scotia and Cape Breton. It leads from Northumberland strait into the Atlantic. Length 17 m., breadth 2½ m.

CANSTEIN, KARL HILDEBRAND, baron, the founder of the Canstein Bible society of Halle,

in Germany, born at Lindenberg, Aug. 4, 1667, died in Berlin, Aug. 19, 1719. Obligated by illness to retire from the army, in which he had served as a volunteer, he devoted himself to the distribution of the Scriptures, conceiving the mode of printing since so extensively used and known by the name of stereotype. His biblical institution at Halle, first founded by subscriptions, has been continued with the greatest success to the present time, having printed and sold at the lowest prices about 5,000,000 copies of the Bible in the German language, beside those in the Bohemian language. The profit from the sales is employed exclusively upon new editions of the Scriptures, which secures a permanent existence to the institution. At his death he left to the orphan asylum of Halle his library and a part of his fortune. The Bible society which bears his name now forms part of the Franke institutions of Halle, so called after August Hermann Franke, the founder of the orphan asylum, and of other philanthropic establishments.

CANTABILE, in music, denotes the easy flowing sounds of a melody, in contradistinction to highly elaborated passages. A piece wherein the melodious element is predominant is called a cantabile.

CANTABRIA, a district of ancient Spain, bordering on the bay of Biscay, and including, according to some of the earlier geographers, what are now the provinces of Oviedo, Santander, Biscay, and Guipuzcoa. After the Roman invasion, when the country became better known, the name was restricted to the province of Santander and the E. part of Oviedo, and was included in that part of the peninsula known as Hispania Tarraconensis. On the E. were the territories of the Autrigones, Varduli, and Vascones; on the W. the river Salia separated it from the country of the Astures, and the S. boundary was formed by the Cantabrian mountains. The river Ebro (Iberus) takes its rise near the district occupied by the Tuisi, one of the several tribes into which the inhabitants were divided. Pliny mentions 9 cities of Cantabria, of which Juliobriga alone was of any importance.—The Cantabri were a brave and warlike people, and of all the Iberian nations they opposed the stoutest resistance to the Romans, and though more than once forced into nominal subjection were never wholly subdued. A portion of them acknowledged the supremacy of Augustus, but the bulk of the nation preserved their independence among the fastnesses of their mountains, while others, rather than submit to foreign masters, sought death by their own hands. After their first partial subjection, 25 B. C., they several times revolted, were almost exterminated by Agrippa, 19 B. C., and under Tiberius called forth the most vigorous exertions of the empire to keep them in check. Horace celebrates their indomitable spirit, and Strabo describes them at some length as a fierce people, "savage as wild beasts," and the rudest in the whole peninsula.

They have transmitted many of their characteristics to their descendants.

CANTABRIAN MOUNTAINS, a range in the N. part of Spain, formed by a W. prolongation of the Pyrénées, and extending from that chain parallel with the S. shore of the bay of Biscay, W. to Cape Finisterre. They bear various names in the different provinces through which they pass, the best known being those of Sierra de Aralar, Salvada, Ordunta, Anafia, Sejos, Albas, Peña, Mellara, mountains of Asturias, Sierra de Peñamarella, Mondofedo, Quadramon, and Tecyra. Some of the summits are rugged, precipitous, and clad with magnificent forests; others are crowned with perpetual snow. The maximum elevation is about 10,000 feet. The mountains are crossed by roads from Pamplona to Tolosa, from Bayonne to Vittoria, and from Burgos to Bilbao.

CANTACUZENUS, JOHANNES, a Byzantine emperor and historian, born in Constantinople about A. D. 1800. He began his career during the reign of the emperor Andronicus, under whom he was first lord of the bed-chamber. He was a relative of the royal family, while his talents gained for him the confidence of the people. Andronicus and his grandson and legitimate successor, Andronicus II., were not altogether harmonious. A revolt of the grandson was the result, which was temporarily settled by his being admitted as a colleague to the throne. Three years later, in 1328, a fresh revolt broke out, and Andronicus I. was compelled to abdicate. Cantacuzenus had attached himself to the victorious heir in the outset, and therefore retained under Andronicus II. the honors he had before enjoyed; he was also made generalissimo of the Byzantine forces. Meanwhile the distracted state of the empire during the revolt had furnished occasion for the incursion of the Ottoman Turks, which gave Cantacuzenus an opportunity to display his military skill. He was unsuccessful against them, but rendered valuable service to the empire in reuniting to it Lesbos and Ætolia, and bringing to an honorable termination the piracies of the Genoese in the Ægean. The emperor, dying in 1341, left his son, John Palæologus, 9 years of age, to the guardianship of Cantacuzenus, who soon aroused the jealousies of the empress-mother, Anne of Savoy, and to save his life he assumed the purple at Adrianople in 1342. The civil war which resulted was at first amicably concluded by his admitting his ward Palæologus as the colleague of the throne, and giving him his daughter in marriage. But the jealousy of the empress-mother raised a new sedition in 1353. Cantacuzenus abdicated, and retired to a monastery; where he devoted himself to literature, and produced a history of his life and times, from 1280 to 1360, in 4 books, printed in Paris in 1645 in 8 vols. folio, in the collection of the Byzantine historians. He also wrote several theological works, among which is a defence of Christianity against Mohammedanism, which drew from



Pope Gregory XI. a commendatory letter. Cantacuzenus ended his days in his monastic retirement, as did also his wife, who had retired to a convent on his abdication. It is not certain in what year he died.

**CANTAGALLO**, a town of Brazil, in the province of Rio de Janeiro, inhabited by Swiss settlers. The town was formerly rich in gold mines, which are now exhausted.

**CANTAL**, an inland department of France, mostly formed of the S. part of ancient Auvergne. It is nearly covered with mountains of volcanic origin, the highest summit of which is the Plomb de Cantal. The climate is severe, the snow generally lying on the mountains for several months together. Chestnuts are the staple article of food for many inhabitants, who live also on buckwheat, rye, and potatoes; the wealthy classes alone use wheat. The agricultural portion of the department is on a level plateau between Murat and St. Flour; very small parcels of arable land being found in the mountainous region. The declivities of the mountains present fine pastures and meadows, where large herds of cattle are kept during the summer. Large quantities of butter and cheese are produced. There are a few factories of coarse woollens and linens, coarse lace, copper and brass, paper-mills, &c. Many natives of the department annually emigrate in search of employment. These are generally known as Auvergnats, and distinguished by industry and a saving disposition. Pop. in 1856, 247,665.

**CANTALUPO**, a town of Naples, province of Sannio or Molise, memorable for a French victory over the Neapolitans in 1798, and for a destructive earthquake, in which many lives were lost, in 1805.

**CANTATA**, a somewhat elaborate vocal composition, ordinarily written for a single voice, with a thorough bass, and comprising recitative and air. Its invention has been ascribed to Barbara Strozzi, a Venetian lady, in the 18th century, and also to Giacomo Carissimi, pontifical chapelmaster, about 1650. It originally assumed the form of an opera, with voice parts and accompaniments of violins and other instruments, but was subsequently restricted to a few melodies, interspersed with recitative, and adapted to a single voice.

**CANTEEN** (Fr. *cantine*), a small wooden or tin vessel, used by soldiers to carry liquors, cooked victuals, &c.; also a little coffer or chest for holding an officer's eating and other utensils; and, lastly, a public house licensed in British garrisons for the use of the soldiery.

**CANTEMIR**, **DEMETRIUS**, hospodar of Moldavia, born Oct. 26, 1673, died Aug. 23, 1723. His father, Constantine, held the same office from 1685 to 1698, and his brother, Antiochus, from 1695 to 1701. Demetrius having spent the early part of his life in Turkey, where he acquired not only a high reputation for literary attainments, but also for military and political ability, assisted in the overthrow of Bassaraba, the hospodar of Wallachia, and could only be

prevailed upon by the Turkish government to become hospodar in his place, by the prospect of eventually becoming ruler also over the former country. He entered upon his duties in Nov. 1710, but Turkey having disappointed him in these anticipations, and the Russians being successful in their first attempts upon Moldavia, he concluded, April 30, 1711, a treaty with Peter the Great, by which Moldavia was to become an independent principality under the protectorate of Russia, Demetrius to be the hereditary sovereign, and to furnish to the czar's expedition against Turkey a contingent of 10,000 men. The enterprise, however, was not successful. The czar was forced to retreat, but declined to surrender Demetrius, who followed him to Russia, where he received extensive domains in the Ukraine, with the right of sovereignty over them, and with the rank of a prince of the Russian empire. He was also made privy councillor, and in 1720 accompanied the czar on his expedition to Persia, but illness compelled him to return. He aided in the establishment of the academy of St. Petersburg, and was a member of the kindred institution at Berlin. He was proficient in 11 languages, and the author of many works on Turkey, Moldavia, and the Mohammedan religion, the best known of which is his history (in Latin) of the growth and decay of the Ottoman empire.—**ANTIOCHUS**, or **CONSTANTINE DEMETRIUS**, a Russian poet and statesman, son of the preceding, born in Constantinople in 1709, died in Paris in 1744. He was carefully educated in St. Petersburg, took for some time a prominent part in political affairs, officiated as Russian ambassador at various courts of Europe, and gained distinction by his diplomatic, but still more by his literary achievements. Among his most noted works are his Russian translations from the classics, and his 8 books of satires, which exerted a great influence on the development of Russian poetry, and have been translated into French and German.

**CANTERBURY**, a city of Kent, in England, on the river Stour, 55 m. by road, 81 by railway from London. The city has no commercial or manufacturing position. It is one of the markets of the rich agricultural county of Kent, and a large quantity of produce is disposed of here. A local trade is also carried on with the surrounding district. Among the public buildings, beside the churches and the charitable establishments, are the guildhall, markets, the new corn and hop exchange, and the philosophical museum. There is a cavalry barrack near the city. Its principal celebrity is derived from its historical associations, and from its being the metropolitan see of all England. The town existed in the time of the Romans, who called it *Durovernum* (from the ancient British *Dur-* *wher*). It was the capital of the Saxon kingdom of Kent, and it was here that Augustine baptized Ethelbert and 10,000 of his Saxons. The great cathedral, which was restored and beautified during the present century, and now presents one

of the most beautiful interiors in England, was built in 1180. The great tower is of remarkable beauty. The windows are of painted glass, and the colors are exceedingly rich. The length of this noble structure is 514 feet, extreme breadth 71 feet. The crypts beneath are considered to be the finest in England, and contain several chapels. The cathedral was founded by Archbishop Lanfranc, completed by Anselm, and consecrated by Archbishop Corbel, in presence of Henry I. of England, David, king of Scotland, and all the English bishops. Augustin was the first archbishop, and died here between 604 and 614. The celebrated archbishop, Thomas à Becket, was murdered before the high altar in 1170. There are numerous monuments in the cathedral; among others those to the memory of Henry IV. and of the Black Prince. There are several other fine old churches in Canterbury, one of the most interesting of which is St. Martin's. In St. Dunstan's the head of Sir Thomas More was found in 1835, which had been buried by his daughter. There are also various architectural relics of past ages. One of the most interesting of these, the great Augustin monastery, long used as a brewery, has been redeemed from its modern uses by the munificence of a private individual, Mr. Beresford Hope, who purchased it, and presented it to the church as a missionary college, defraying the expense of the restorations and enlargements. There are several educational establishments in the city; the grammar-school, an endowed school attached to the cathedral, the national British and infant schools, a blue coat and a gray coat school. There are also numerous charitable institutions. There is a fine hospital. By the liberality of another private individual, Alderman Simmonds, a field, called the Dane John, containing a high mound, was laid out, and converted into a very pleasant garden for public use. The borough of Canterbury is governed by 6 aldermen, 1 of whom is mayor, and 18 councillors, and returns 2 members to the house of commons. Pop. in 1851, 18,898.

**CANTHARIDES** (Gr. *κανθάρης*, a beetle), coleopterous insects of several species, made use of in medicine. The most preferred is the *cantharis vesicatoria*, a foreign fly, procured mostly in the southern parts of Europe, but to some extent in all the temperate regions of Europe and western Asia. A species called the *C. vittata*, or potato-fly, is common upon the potato plant of the United States; it is much used as a substitute for the foreign fly, and is by many regarded as equally efficient. It is even adopted in the pharmacopœias as official. Other species, too, are known in this country, and are in some parts of it exceedingly abundant. The potato-flies appear on the plant in the mornings and evenings of August. During the day they disappear in the earth. They are collected by shaking them off into a basin of hot water. They are from  $\frac{1}{4}$  to  $\frac{1}{2}$  of an inch in length, and of a shining golden green

color.—Cantharides are imported from the countries on the Mediterranean, and from St. Petersburg. The Russian flies, which may be distinguished from others by their superior size and peculiar copper hue, are the most esteemed. In the larvæ state the cantharides live in the ground upon the roots of plants. The flies of southern Europe usually swarm upon the trees in May or June, selecting such as the white poplar, privet, ash, elder, &c. The early morning is the proper time for collecting them, when they are in a torpid state, and will easily let go their hold. Persons protected with masks and gloves beat the trees, and the flies fall upon a linen-cloth spread to receive them. They are then deprived of life by being exposed to the steam of hot vinegar. This method of destroying them dates back to the times of Dioscorides and Pliny. When dry they are carefully packed. If kept in air-tight vessels, they will retain their properties for many years; but if exposed, they will soon putrefy, particularly if reduced to powder. For this reason they should be kept whole until wanted for use. Being then powdered and mixed with ointment or lard, they make a valuable preparation for blistering plasters. Care is required in its application, as troublesome sores, and erysipelatous inflammations are apt to follow its use. Internally administered, the medicine acts as a stimulant, principally upon the urinary and genital organs; its use is attended with danger, as it acts in large doses as a powerful and highly irritating poison.

**CANTHARIDIN**, a principle derived from the alcoholic tincture of the cantharides insect. It was discovered in 1810 by Robiquet. When the strong solution is set aside, the cantharidin separates in crystals like plates of mica or spermaceti. These are volatilized by heat and pass off in white vapors, which condense in acicular crystals. Being soluble in ether, it is used in the preparation of blistering papers, and the principle being extracted, the flies are sometimes used to adulterate the genuine article.

**CANTIOLES**, or **SONG OF SOLOMON** (*Shir-hashirim* in Hebrew, the *ασμα των ασματων* of the Septuagint, the *Canticum Canticorum* of the Vulgate), the 4th book of the Hagiographa, and the 1st of the so-called Megilloth, has its name of Song of Songs from the superior beauty of its language and poetry. In a number of dialogues and soliloquies, written in most harmonious verses, it gives a glowing description of the tender, chaste, and faithful love, as well as of the beauty of two lovers betrothed, or bride and bridegroom; of rural scenes among the mountains of Lebanon and Hermon, among the hills and vineyards of Engedi, and in the environs of Jerusalem and Thirza; and of love itself, sweeter than wine, more fragrant than ointments, which cannot be bought, nor quenched by waters, nor drowned by floods. It is ascribed to Solomon, whose palaces, gardens, chariots, horses, guards, and wives are men-

tioned, enhancing by the contrast, the charms of calm rural life, full of song, innocence, and love. In regard to its form, its plot, and the order of its parts, as well as to its subject, it has been variously classified by ancient and modern writers; by Origen, in the preface to his comments, as an epithalamium in the form of a drama, which is also the opinion of Lowth and Michaelis; by Bossuet as a regular pastoral drama of 7 acts, giving the scenes of 7 days, of which the last is the Sabbath; by others as a collection of songs or idyls. Dr. Adam Clarke regards it as a poem *sui generis*, composed for the entertainment of marriage guests. Its canonicity has also been a matter of controversy; it seems to have been in question with the Jews at the time of the Mishna. Theodore of Mopsuestia, the friend of St. Chrysostom, attacked it most vehemently with arguments derived from the erotic character of the book, and was severely condemned for his attacks. Origen, who is said to have written 10 books of comments on the Canticles, containing no less than 20,000 verses, and his admirer Jerome, are among its most prominent defenders, supported by the circumstance that the book is contained in all the Hebrew copies of the Scriptures, in the translations of the Septuagint, of Symmachus the Jew, and of Aquila, and is mentioned in the most ancient catalogues of the church, commencing with that of Melito, bishop of Sardis, who lived in the 2d century, though not expressly by Josephus. Modern criticism has also questioned the authorship of King Solomon, and several Aramaic words, the *god* in the word David, and the abbreviation of the relative *asher*, &c., have been quoted as evidences against the generally accepted antiquity of the book, though none of these is conclusive. But no subject has excited more and livelier controversies, or has been a source of more learned and contradictory disquisition and scrutiny, than the question of the literal or allegoric and mystic sense of the book. Many modern critics both among Jews and Christians, not unsupported by the opinions of ancient and grave authorities, contend for the literal sense. They also widely differ in the interpretation of the meaning and object of the book. These writers account for its reception into the canon on the ground of its praise of faithful love, of conjugal affection, and the chastity of monogamy, or of a misunderstanding of the collectors. The more ancient opinion, on the other hand, which is alone regarded as orthodox in both church and synagogue, defends the allegorical, religious, and sacred character of the songs. Thus, on the one side the subject is the love of a shepherd, of a youthful king, &c., and the beloved is a shepherdess, an Ethiopian princess, or, according to Grotius and others, the daughter of Pharaoh, wife of Solomon; while, on the other side, love appears as a spiritual affection, as the love of the God of Israel for his chosen but abandoned people, according to the Chaldee paraphrast, the rabbis, and even Luther; of Christ for the church, between the soul of the believer

and Christ, or as the connection between the divine and human nature, according to views current in the church. Aben Ezra, a Jewish philosopher of the 12th century, finds in the book the hopes of redemption for oppressed Israel; Keiser, the restoration of the Mosaic law by Zerubbabel and Ezra; Hug, an attempt made in the time of Hezekiah to reunite the remnant of the 10 tribes to Judah; others, the love of wisdom; the alchemists, even the search for the philosopher's stone. Dr. Kirchbaum, of Oracow, brings the book down to the time of Hadrian, finds in it the last outbreak of Jewish patriotism and love of liberty, and in the *harai bathor* the mountains of Bethar, so heroically defended by Bar-Cokbea. Beside the authors above mentioned, who have written upon the Canticles, the names of Erasmus, Le Clerc, Rosenmüller, Eichhorn, Jahn, De Wette, Ewald, Robinson, and Stuart, must be mentioned, as well as those of Mendelssohn and Dr. J. Mason Good, who have published admirable translations. Of those of Jerome only one is extant.

CANTIUM, in ancient geography, the district in Britain which nearly corresponded to the present county of Kent. The inhabitants (*Cantii*) were spoken of by Cæsar as being the most civilized of the native British tribes.

CANTO FERMO (It. firm song), a term applied in ancient church music to the simple chants or melodies sung without accompaniment, or only harmonized with octaves. In such compositions the notes are of the same length, and the structure of the music is of the simplest kind. After the invention of counterpoint, the melody was harmonized with more skill and effect, and to such improved species of vocal composition the name of *canto figurato*, or figured singing, was given, to distinguish it from the *canto fermo*.

CANTON, a town of Canton township, and the seat of justice of Stark co., Ohio. It is beautifully situated on an excellent mill-stream called Nimishillen creek, in the midst of the finest wheat-growing district in the state; and since the completion of the Ohio and Pennsylvania railroad from Pittsburg to this place in 1852, has increased wonderfully in size and importance. Bituminous coal and limestone are found in the vicinity. In 1852, the town contained 8 iron founderies, 8 woollen factories, 2 gun-barrel factories, a bank, an academy, and 4 newspaper offices. Pop. in 1858 estimated at from 8,000 to 4,000.

CANTON, a city of China (lat. 23° 7' N., long. 118° 14' E.), the chief emporium of the empire, and superior in population and wealth to any other native Asiatic commercial city. In respect to the value of its trade, it ranks in the East next to Calcutta. It was, till 1842, the sole entrepot of European commerce with China, and its commercial distinction has been attributed mainly to the advantages derived from this intercourse; but a careful study of its position and resources, and of the enterprise of its people, will

lead to a different conclusion. It is the chief entrepot of the commerce of China with Japan, Siam, Cochin China, and the islands of the Malay archipelago. The Cantonese are the principal farmers of sugar estates and mines in Siam, and through their ingenuity and energy the iron ore found so abundantly in that country has been rendered available; they are the manufacturers and traders of Cochin China, and in Java, Sumatra, Borneo, Celebes, and other great islands of the eastern seas, we find the Chinese, four-fifths of whom are from Canton, engaged as chief directors of coffee culture, sole miners of tin, the cultivators of spices, the chief peddlers among the semi-civilized people of the interior, and the leading bankers of the European cities; they are also the principal carriers of the inter-insular and coastwise trade. This was as much the case 3 centuries ago as it is at this day. Barbosa saw in 1511 the great mart of Malacca crowded with their junks, laden with silks, porcelain, saltpetre, iron, pearls, toys, and incense; taking in return pepper, coral, cotton, opium, and various drugs and gums. The great junk fleet, composed of vessels ranging from 500 to 1,000 tons burden, which lies opposite the European hong at Canton, contributes more to the wealth of the city than the European fleets which anchor at Whampoa. The junk fleet bears annually 80,000 emigrants to Asiatic continental and insular ports. There are several Canton correspondents at Batavia, Singapore, and Bangkok, each worth from \$3,000,000 to \$12,000,000. When we regard the position of Canton, we find that, though more remote from the sea than its northern commercial rivals, Shanghai, Ningpo, and Foo-choo, it is very favorably situated to take advantage of the monsoons that waft its junks to the ports of S. E. Asia. Its position for internal trade is also highly favorable, situated upon the Choo-kiang or Pearl river, formed by the junction of the Pe-kiang and Yuh-kiang. The river Pe flowing N., and the Yuh, or western stream, with their confluent, which have deep waters and a gentle current, are navigable throughout the whole extent of the rich provinces of Quang-see and Quang-tong, of which latter Canton is the capital, and derives its name, through European corruption of the language, from this province, although its proper native name is Hong-choo-foo, or the "Pearl City of Commerce." The products of the rich valley bounded by the Mey-ling, Yung-ling, Ya-shan, and Lo-feu-shan ranges of mountains, area 150,000 sq. m., pop. 60,000,000, have no other market but Canton, and before the establishment of Shanghai as a port of foreign entry, the products of the Yang-tee valley and populous Po-yang lake basin were brought down the Kan river to Nanngan; thence by portage through a pass in the Mey-ling mountains, 24 m., to Nann-huing, a considerable town at the head of navigation of the Pe, and thence down to Canton. The natural water ways of the

rich valley which forms the background of Canton are tapped at innumerable points by artificial conduits, forming a net-work of irrigation and water communication, far surpassing any thing of similar character in any other country. The aspect of the landscape, beheld from the fortifications in the rear of the city, is exceedingly picturesque. Far away among the beautiful verdure and shrubbery of the plain, you behold the gilded masts of junks gliding in all directions, intermingled with the pointed roofs of villages and the spires of pagodas. This beauty of distant Chinese scenery does not appear in the approach to Canton, and the traveller who for the first time passes through the great delta or archipelago below the city, is disappointed by the aspect of the sluggish stream, the low mud banks, and the dead treeless level lying beyond. Large foreign vessels must come to anchor at Whampoa, 12 m. below the city, and to this point they are guided by the famous 9 story pagoda of Whampoa. From thence you proceed to the city in a sampan, or "dollar boat" (the name derived from the charge), passing the Boca Tigris, upon which are situated the Bogue forts, which extend their white walls to the summits of the hills on Great Tiger island. About 4 m. from the city is anchored the "boat town," or the 40,000 covered river boats, which are the constant homes of the half million of Tankia, that strange, amphibious, pariah race of China, who are never permitted to enter into cities; who subsist by fishing, and various singular occupations, such as the rearing of myriads of ducks, of puppies, cats, and rats for the epicures of Canton; and who also recruit the piratical sampans, which infest the mouth of the Canton river and almost every portion of the coast. The Tankia fleet is a home for the city's swarm of prostitutes, and it sends forth its painted floating dens to visit the European and American ships. Between this floating city of outcasts and the point of landing at the foreign quarter is the anchorage of the great junks engaged in foreign Asiatic trade. The foreign quarter, with its handsome 3 story edifices, presents a striking contrast to the low, dingy, tent-like dwellings of the Chinese. This quarter comprises about 4 acres of ground, 2 of which, on the water side, are laid out in walks, planted with shrubbery and ornamental trees, in the centre of which stands an English church. The esplanade immediately within the sea wall, which is an agreeable promenade in the cool of the morning and afternoon, is called Respondentia Walk, and is the chief resort for recreation of the European and American residents. The inland half of the quarter is occupied by the factories or hong and residences of Europeans, whose flags, hoisted daily, display 8 or 9 different nationalities. When a respectable stranger arrives here with letters of introduction, he is generally received and hospitably entertained at the mansions of the merchants, especially the English and Ameri-

can, who have generally commercial and dwelling establishments at Macao and Hong Kong. For the accommodation of the less fortunate European stranger there are a couple of hotels, conducted on semi-European principles; that is, Chinese in service, chamber accommodation, and filth, and European in diet; but to the curious and hardy traveller, the hotel of Acowo affords a far better opportunity for acquiring a knowledge of the people and city than a residence at one of the princely honges. Though the Cantonese have been represented as being of all Chinese the most hostile to strangers, yet it has been the experience of several intelligent travellers, that a courteous and cheerful deportment has always secured immunity from insult in visiting portions of the city distant from the foreign quarter; and even rambles with ladies in company have been extended without molestation through the country, around the fortifications of the walled city proper. The walls are 30 feet high, 15 feet thick at the base, narrowing toward the top, built of oblong blocks of sandstone, from 1 to 2 feet in length and thickness, though some portions are partially of brick. This circumvallation forms an enclosure 7 m. in extent, and is entered on different sides by 12 great gates; 4 of which are called partition gates, being in that portion of the wall which separates the city proper from the suburbs, or portion accessible to foreigners. The walled city, as viewed from a commanding height outside, is little else than a rusty, irregular, concave plain of tiled roofs, corners of jutting angles and horns, red flag posts in pairs before the mandarins' houses, and towering above all, widely separated, 2 great pagodas. One of these is 160 feet, and the other 170 feet high. There are 124 josh houses, or small temples, in the city and suburbs. The streets, about 600 in number, are narrow and tortuous, and never designed to permit a European wheeled vehicle to pass, as they barely afford a passage for the palanquins borne on the shoulders of a couple of men, the only means of conveyance for those who are not pedestrians. All goods are transported on the shoulders of porters, who are to be found in such immense numbers, and offer their services at such low rates, that the cost of the maintenance of horses and vehicles is evidently unnecessary amid this swarming population, which is estimated variously at 1,000,000 and 1,500,000, and, including the population of the boat town, perhaps exceeds the latter estimate. Each street is generally appropriated to some particular branch of trade or handicraft; one is called Looking-glass street, another Curiosity street, and another Egg street, where the singular spectacle is beheld of millions of eggs, chiefly ducks' eggs, which are prepared for preservation, and form an item in the foreign Asiatic trade, as well as in the home consumption. The proprietors of the various shops are noted for an unusual degree of suavity. When not engaged within, they

are ever seen standing in the door-ways of their establishments, and, in an amusing jumble of mongrel English and Portuguese, most pertinaciously solicit the attention of the passing European. The Cantonese shopkeeper extends a liberal hospitality to his customers; he always has a refreshing cup of tea to present, or wine and other refreshments; and if his civilities and largesses fail to secure a purchaser, he parts with his visitor with the same unflinching politeness with which he received him. This disposition marks the Canton trader in all parts of Asia. Provisions of all kinds are abundant and cheap in Canton; and few large cities can compare with it in point of salubrity. The innumerable children that encumber the narrow pathways, and crowd almost every city canal boat, attest the wholesomeness of the climate. This swarming life seems to flourish amid an astonishing amount of dirt; the thousands of women who wade in the filthy river-mud at low water, in quest of various mollusks, have each generally a child suspended at their backs; and this burden seems to be an invariable appendage of a Tankia woman, who, as she sculls her sampan along, flaps from side to side the head of her comical-looking little offspring. This teeming hive of the human race sends forth annually about 40,000 trading adventurers and laboring coolies to different parts of Asia, and of the latter lately to Australia, California, South America, and the West Indies. The temperature ranges from 75° to 90° F. between June and August, and 50° to 80° in Jan. and Feb. Snow fell in the city in Feb. 1835, but had never before been seen by a living inhabitant. Most of the rain falls in May and June, but in much less quantity than during a rainy season in the same latitude on the Indian peninsula. The S. W. monsoon causes a clear sky, and brings a refreshing and invigorating air from Oct. to Jan. A good deal of unhealthiness is complained of in the foreign quarter, especially among the ladies; but this must be attributed to their luxurious and heavy European diet, and to the entire absence of suitable exercise.—The first intercourse of Europeans with this city was in 1517, when Emanuel of Portugal sent 8 ships of war to accompany an ambassador, who went to Peking and obtained permission for his government to establish a trading post near Canton, which was ultimately fixed at Macao. In 1596 the English failed in an attempt to open trade there. In 1684 they made another attempt with a greater number of ships; but the expedition was abortive through the machinations of the Portuguese. The perseverance of the English finally gained for them a superior position in the European trade with Canton, which they still maintain. Their imports in 1842, before the opening of other ports to foreign trade, were about \$17,500,000 of British manufactures, and \$18,000,000 of colonial produce; with exports valued at \$19,000,000, of which \$15,000,000 was of tea. The United States rank next to

Great Britain in commercial importance at Canton. The enterprising merchants of Salem were pioneers of this trade, commenced at great risk amid the dangers and vicissitudes of the war of the revolution; and this commerce in 1855 gave employment to 90,000 tons of shipping, taking to Canton \$2,750,000 of American manufactures and produce, chiefly coarse cotton fabrics, lead, and ginseng, and returning with \$11,000,000 of Chinese products, of which \$7,000,000 was of tea.—On May 26, 1841, the British, failing to obtain redress for certain grievances, captured the forts which command the city, and compelled it to pay a ransom of £6,000,000 to save it from bombardment. In 1847 the British again took possession of the outer fortifications of Canton. Again in combination with the French, they commenced hostilities, Nov. 1857, against the city, which they captured without much loss, Dec. 29, 1857. An allied garrison still (Sept. 1858) occupies the city.

CANTON, JOHN, an English savant, born at Stroud, Gloucestershire, in 1718, died March 23, 1772. Having pursued the study of science with so much diligence as to interest in his behalf many persons of eminence, he entered as an assistant, for the term of 5 years, the school in Spital square, London, and at the expiration of that time succeeded to the mastership, in the discharge of the duties of which he spent the rest of his life. In 1745, the discovery of the Leyden vial turned the attention of Canton to the subject of electricity, in which he made several valuable discoveries, almost simultaneously with Franklin. He was the first person in England who verified Franklin's hypothesis of the identity of dynamic electricity and lightning. In 1750 he submitted a paper to the royal society on the method devised by himself of constructing artificial magnets. This paper procured him an election to a membership of the society, and an award of a gold medal. A paper on the possible elevation of rockets, one on the phenomena of shooting stars, another on the electrical properties of the tourmaline, and another on the variation of the needle, with appended observations for one year, and still another on the compressibility of water with details of experiments, followed each other in quick succession. This last-mentioned paper brought him, in 1765, a second medal from the royal society. The last paper Canton ever submitted to the society, was to prove that the luminousness of the sea arises from the petrification of its animal substances.

CANTON RIVER (Chinese *Choo-kiang*, or Pearl river), the lower part of the Pe-kiang, a river of China. It is navigable inland a distance of over 800 m., flowing through the provinces of Quang-tong and Kiang-see. Opposite the city of Canton, and for some distance below, it is filled with small islands, planted with rice and defended by a number of forts. It is here crowded with shipping, and deep enough to admit vessels of 1,000 tons burden. The ships of foreign nations, however, discharge

and receive their cargoes at Whampoa, a place 12 m. lower. At a point about 40 m. below Canton the river takes the name of Boca Tigris.

CANTU, OMBERTO, an Italian historian, poet, and philosopher, born in Brissio, Sept. 5, 1805, educated at Sondrio in the Valtellina, where he taught belles-lettres at a youthful age, resided afterward in Como, and next at Milan until 1848. One of his earliest works, entitled *Ragionamenti sulla Storia Lombarda nel Secolo XVII.* ("Lectures on the History of Lombardy in the 17th Century"), 8vo, Milan, appeared in a second edition in 1842-'44, and contained liberal ideas that brought upon the author the animadversion of the Austrian government, which condemned him to a year's imprisonment. During his confinement he composed a historical romance, entitled *Marherita Pusterla* (Florence, 1845), which has become very popular. His great work, on which his reputation will chiefly rest, *Storia Universale* (Universal History), appeared first in 1837, at Turin. It has been since revised and reprinted at Palermo and Naples, and translated into German. A French translation by Aroux and Lopardi, was published in Paris in 1848. The greatest proof of its merit and success, however, are 8 large editions published in Turin; the last edition, carefully revised by the author, reaching 35 vols. 12mo. The work is divided into the narrative, followed by volumes of documentary history, and various illustrative essays by the author, and concludes with tables and appendices giving a resumé of the whole work. The style is fresh and vigorous, and yet, after the manner of his countrymen, elegant and sustained. Cantu has been a man of great industry and close application, for although he uses the works of others, he is still unhaakened and free from imitation. This great history is a monument honorable to him and to Italy. He possesses a critical spirit, and is fully up to the time in which he lives, and in his judgments on literary and political characters he seeks to be just as well as independent. The great learning of Cantu is not the only trait that distinguishes him as an original character among many of his countrymen less profound, yet better known than he to the English and American public. He is a friend indeed of liberty, and has suffered as we have seen in her cause, yet he is a devoted admirer and practical follower of the doctrines of the Roman Catholic church. All these traits combined give a peculiar character to his history, and render it both interesting and important. His religious lyrics are found in all popular collections of that kind of poetry, and are much esteemed by his countrymen. Other works, for which he has acquired general esteem, are: *Parnasso Italiano, Poeti Italiani Contemporanei, maggiori e minori* ("Italian Parnassus, Contemporary Italian Poets, Major and Minor, &c."), Paris, 1848; *Storia di Como* ("History of Como"), Milan, 1847; *Algiso, o la Lega Lombarda* ("Algiso, or the Lombard League"), Milan, 1846; *Letture giovanili* ("Ju-

venile Readings"), 4 vols., published about the same time, a work devoted to popular education, which has been translated into several languages, and has passed through more than 80 editions; *Storia della Letteratura Italiana* ("History of Italian Literature"). Finally, one of his most popular works is the *Storia degli ultimi Cento Anni* ("History of the last Hundred Years"). It was published first at Florence, 1851, and translated into French by M. Amédée Renée (Paris, 1858). It has since passed through several editions, among which is a recent and revised one issued at Turin. Cantu was obliged to leave Milan at the time of the eventful insurrection of 1848, as he would have been imprisoned had he remained there. He has since returned to Milan, where he is devoted to historical and philosophical studies.

CANTU, or CANTURIO, a town of Lombardy, pop. 5,864. It has had iron manufactures ever since the 10th century, and contains an ancient church, remarkable for a tall and slender belfry, used during the middle ages as a beacon.

CANTYRE, a narrow peninsula of Scotland, forming the southern point of the county of Argyre. It is terminated by a light-house, whose light is seen at a distance of 22 m.

CANUTE THE GREAT, KNUT, or KNUT, the 2d king of Denmark of that name, and first Danish king of England, born in the former country about 995, died at Shaftesbury, in England, in 1036. He was the son of Sweyn, king of Denmark, and accompanied his father in his victorious campaigns in England. Sweyn, having proclaimed himself king of England, died in 1014, before his power was established, and appointed Canute his successor there. The latter was immediately driven out by Ethelred, the representative of the Saxon line, and fled with 60 ships to the court of his brother Harold, king of Denmark. Harold enabled him to collect a large fleet in the north to prosecute his cause in England. He invaded that country anew in 1015. He fought many battles with Edmund Ironside, who had succeeded his father Ethelred, in 1016, and was finally victorious at the battle of Assington. After this battle, Edmund and Canute agreed upon a division of the kingdom. To Canute were assigned Mercia and Northumbria, while the Saxon prince preserved West and East Anglia. By the death of his brother Harold, he obtained the crown of Denmark (1016). In the same year, and but one month after the ratification of the treaty of partition, Edmund died, and Canute became sole king of England without further resistance. He refrained from murdering the children of his late rival, and sent them to his half brother, Olave, king of Sweden. He put away his wife, Alfgive, the daughter of the earl of Northampton, and espoused Emma, the widow of Ethelred the Saxon monarch (1017), on the condition that their children should succeed to the throne of England. He made the greatest exertions to gain the affections of his English subjects, to whom his Danish origin was no recommenda-

tion. He accordingly disbanded his Danish army, retaining only a body-guard. He endeavored to blend the 2 races as far as possible, and to induce them to live in harmony with each other. He erected churches, and made donations to abbeys and monasteries on the scenes of former conflicts and massacres. In a witenagemote at Winchester, he compiled a code of laws which is still extant. In this code he denounced those who kept up the practice of pagan rites and superstitions, and forbade the sending of Christian slaves out of the country for sale. Although Canute generally resided in England, he made frequent visits to Denmark. He carried with him on these occasions an English fleet, English missionaries, and English artisans. He promoted 3 Englishmen to the newly erected bishoprics of Scania, Zealand, and Fionia. In 1025 he was attacked by the king of Sweden and defeated; but in the night, Earl Godwin, at the head of the English contingent, surprised the Swedish camp and dispersed the enemy. His absence from Denmark, and the bestowal of so many dignities in Denmark upon his English subjects, made him unpopular in that kingdom. To appease this discontent, he left behind in Denmark his son Hardicanute, then aged 10 years, under the guardianship of his brother-in-law Ulf (1026). In this year he made a pilgrimage to Rome. He was well received there by the pope John, and by the emperor Conrad II., who gave up to the Danish king all the country N. of the river Eider. From the pope he obtained privileges for the English school established in Rome, and an abatement of the sums demanded from his archbishops for the *pallium*; and from the various princes, relief for all English and Danish pilgrims and merchants, from all illegal tolls and detentions which they had endured on their route to Rome. He returned from Rome to Denmark. In 1028 he made an expedition into Norway, expelled Olave, and restored Haec, who swore allegiance to him. In 1029 he returned to England, and his Danish subjects proclaimed Hardicanute king of Denmark. Canute immediately returned to Denmark, put down the revolt, and executed the traitor Ulf. In 1031, Canute was acknowledged king of Norway, and laid claims to the crown of Sweden. On returning again to England, he allowed his son Hardicanute to share with him the Danish crown. His reign is very important in the constitutional history of Denmark. Canute issued the first national coinage of Denmark, and published the first written code of Danish law, wherein the custom of private vengeance was prohibited. He raised the clergy in their corporate capacity to a separate estate of the realm, and instituted the Thinglith or royal guard of 3,000 men. The members of this body were all men of good family, and rich enough to equip themselves at their own expense. From them sprang the Danish order of nobility; they were tried only by their peers, and formed with the king the highest court of

justice. Canute's last campaign was against Duncan, king of Scotland, respecting the possession of Cumberland, but before the armies could engage the 2 kings were reconciled, and ancient stipulations concerning the tenure of Cumberland were renewed (1033). Canute was buried at Winchester. By Emma he had 2 children, namely, Hardicanute or Canute the Hardy, and a daughter, Gunhilda, married to Henry, the son of Conrad II., of Germany, emperor. By Alfgeve he left 2 sons, Sweyn and Harold. To Sweyn was given the crown of Norway; Hardicanute retained that of Denmark. and Harold, surnamed Harefoot, took possession of that of England. Canute is most popularly known, not by his extended rule and legislative enactments, but by the familiar story of the monarch, the courtiers, and the disobedient sea.

CANVAS-BACK (*fuligula valisneria*), a duck of the family *fuligula*, or sea-ducks, peculiar to North America, and celebrated as the most delicious of all water fowl, perhaps of all birds, without exception; though on that point authorities and epicures differ. The sea and its bays and estuaries are the principal haunts of this genus. Sir John Richardson states, that the *fuligula valisneria*, the canvas-back, *fuligula ferina*, the red-head, and *fuligula rufitorques*, the ring-neck, breed in all parts of the fur countries, from the 50th parallel to their most northern limits, and associate much on the water with the *anatina*. The male canvas-back has the region of the bill, the top of the head, chin, base of the neck, and adjoining parts dusky red; sides of the head and whole length of the neck deep chestnut red; lower neck, fore part of breast and back, pitch black; the rest of the back white, closely marked with fine undulating lines of black; rump and upper tail coverts blackish; wing coverts gray, speckled with blackish; primaries and secondaries light slate color. Tail short, the feathers pointed; lower part of the breast and abdomen white; flanks the same color, finely pencilled with dusky; lower tail coverts blackish brown, inter-twined with white. Length 22 inches, wing 9½ inches. The bill is bluish black; the feet and legs are dark slate color, the irides fiery red. The female is somewhat smaller, and is less brilliantly and less distinctly colored than the male. This species is not found in any part of Europe. Its richly flavored flesh is admitted to be superior to that of any other of the genus. The canvas-back duck returns from its breeding places at the north about the first of November, and during the winter extends its visits to the southern parts of the seacoast of the United States. It is not unfrequently shot in the eastern part of the Great South bay of Long island, in Long island sound, on the shores and bays of New Jersey, at Squan beach, Barnegat, Egg harbor, and in the estuary of the Delaware; but, in all these localities, it is but a common duck, in nowise superior to many others, and decidedly inferior to the red-head.

It is only in the Chesapeake bay, about the confluence of the Potomac and Gunpowder rivers, where it becomes itself, the king of all wild fowl. This excellence is attributable solely to the peculiar food which it finds in that estuary, a plant commonly known as wild celery, botanically as the *sostera valisneria*, or *valisneria Americana*, which is on no account to be confounded with the *sostera marina*, or common eel-grass. This plant, of which the canvas-back duck is so fond, that it derives from it its specific name of *valisneria*, grows on shoals, where the water is from 8 to 9 feet in depth, which are never wholly bare. It has long, narrow, grass-like blades, and a white root somewhat resembling small celery, whence it has its vulgar name; although it is unnecessary to say that it has no real connection whatever with that plant. This grass is, in some places, so thick as materially to impede a boat, when rowed through it, by the opposition it offers to the oars. It is on the root alone of this grass that the canvas-back feeds. For these roots the canvas-backs dive assiduously and continually, tearing up the grass, and strewing it on the surface of the water, in long, regular windrows, like hay from the mower's scythe. The duck rises to the surface as soon as he has obtained the reward of his labor, in the shape of his favorite root, which he cannot swallow under water; and, before he has got his eyes well open, says Mr. Wilson—though, with all due deference to the eloquent pioneer of American ornithology, it may be well doubted whether so expert a diver as the canvas-back ever shuts his eyes—is robbed of his meal by the impudent widgeons, or bald-pates, as they are called in America, which never dive, but, being equally fond of the root of the *valisneria*, depend on their adroitness and agility to rob the industrious canvas-backs. On this account the bald-pates congregate eagerly, as far as they are allowed to do so, with the canvas-backs; who, however, live in a constant state of contention with their thievish neighbors, and, being by far the heavier and more powerful fowl, easily beat off the widgeons, who are compelled to retreat, and make their approaches only by stealth at convenient opportunities. With the canvas-backs also associate the red-heads, the scaups, or, as they are called in the Chesapeake, the black-heads, and some other varieties, with which they feed on terms of amity.—The excellence of the flesh of the canvas-backs causes them to be much sought after for the market, but in the waters which they frequent they are so strictly preserved by the real sportsmen, who abound in that part of the country, and have obtained the control of most of the shores, that the worst methods of poaching are prohibited. The canvas-backs will not fly, like geese and many of the species of ducks, to decoys; and the anchoring of batteries on the feeding flats, and the sailing after the birds on their grounds with boats, are not permitted under any circumstances, which has preserved



thus far this delicious fowl from extermination. The ordinary mode of killing them is by shooting them on the wing, from behind screens, or blinds, as they are termed, of reeds, arranged on the projecting points of land, over or in the vicinity of which the fowl are compelled to fly in going up and coming down the bay, to and from their feeding grounds. The velocity at which they fly, as well as the height of their course, renders it extremely hard to hit them; and a great allowance must be made in taking aim, in order not to shoot far behind the object, which will surely be the case if the sight of the gun be laid directly on the passing fowl. Add to this, that the feathers on the breast of this duck, as of many others of the family, are so closely compacted together, of so thick and elastic texture, and so matted by the aid of the oil from the gland in the rump with which the bird lubricates them, that any ordinary shot, striking on the breast, as the fowl comes toward the shooter, will make no more impression than it would on the breastplate of a French cuirassier. The best and most deliberate fowlers, therefore, when they have time to do so, let the flights pass, and then shoot them with the grain of the feathers. A remarkable propensity of these birds is to be attracted, with a most singular and insatiable kind of curiosity, by the appearance of any unusual sight on the shores; and anything of this nature will induce them to leave their feeding grounds, and swim in great flocks of thousands together, perfectly fearless, or rather reckless, to the places where men lie for them in ambush. It is said that the scap, or black-head, can be allured in this manner more easily than the canvas-back; and that the red-heads and widgeons, when they are alone, cannot be deceived at all, though, when in company with the others, they will fall into the same error, and accompany the flocks to their own destruction. Advantage has been taken of this habit to ensnare the unwary birds to their ruin, by a system which is called toling. It is thus practised: A long range of screens is set up along the shore, within a few yards of the water mark, behind which the shooters lie concealed, with small openings at intervals to permit the egress and ingress of a small cur-dog, the more like a fox the better, and so also the odder his appearance and the more remarkable his color, who is taught to run back and forward in front of the blinds, performing all sorts of curious tricks and antics, to attract the attention of the fowl. So soon as this object is attained, they will swim up in a body within easy gun-shot; and so totally are they infatuated and demented by their curiosity, that so long as the shooter holds himself concealed, and the dog continues his deceptive gambols, so long can the stupid birds be drawn up, to receive volley after volley, until they are decimated or destroyed, perfectly regardless of their dead or wounded companions, through which they will continue to advance on the muzzle of the gun. The only thing necessary to be ob-

served in this sort of shooting is not to overshoot the flock, which a novice is sure to do, so deceptive is the effect of shooting over water. The plan adopted by the oldest shooters is, in taking aim, to see the whole body of the nearest fowl, in a flock of hundreds, in clear relief above the sight of the gun, and then the charge will fall into the middle of the throng. By good sportsmen, toling, and indeed any other way of shooting canvas-backs than on the wing, from points, is held rightly to be rank poaching. When the rivers begin to freeze, vast numbers of all these varieties of ducks congregate at the open air-holes, and fearful slaughter is made of them in hard weather at such places; as many, it is said, as 88 canvas-backs having been killed at a single discharge of a heavy gun. Wounded canvas-backs are expert divers, and are extremely difficult to recover; wherefore it is usual, always, to be accompanied by a good Newfoundland retriever.

CAOUTCHOUC, India rubber, called by the South American Indians *cachucha*, the concrete milky juice of a number of trees and plants found in Brazil, Guiana, Peru, &c., and in the East Indies. The poppy and lettuce, and some of the euphorbia, afford a similar exudation. The American tree, from which this article is supplied, has been variously named by different naturalists. It is the *jatropha elastica* of Linnaeus, *siphonia elastica* of Persoon, and *S. cactus* of Schreber and Willdenow, and the *hæva Guianensis* of Aublet. The Asiatic trees, which furnish the greater part of the supplies from the East, are the *ficus* and *urecola elastica*. The former is one of the noblest forest trees, its girth being sometimes 74 feet and its height 100 feet. In Assam, beyond the Ganges, are found inexhaustible forests of it; but the quality of the product is inferior to that of the American tree. The French astronomers sent to Para in 1745 were the first to call attention to this useful article. The tree was afterward discovered by Frisnau in Cayenne in 1751.—The province of Para, S. of the equator, in Brazil, furnishes immense quantities of this article to commerce. The trees are tapped in the morning, and during the day, a gill of fluid is received in a clay cup placed at each incision in the trunk. This is turned when full into a jar; and is ready at once to be poured over any pattern of clay, or a wooden last covered with clay, the form of which it takes as successive layers are thus applied. In a similar manner candles are made by accretion of grease around a wick. As these layers are applied, their drying and hardening are hastened by exposure to the smoke and heat of a fire, and thus the substance acquires its ordinary black color. Dried by the sun alone, it is white within, and yellowish-brown without; when pure, it is nearly colorless. Complete drying requires several days' exposure to the sun; during this time the substance is soft enough to receive impressions from a stick, and is thus ornamented by various designs.

The natives collect it upon balls of clay in the form of bottles and various fanciful figures, in which shapes it is often exported. They also make it into tubes, which they use for torches. The clay mould over which the bottles are formed, being broken up, is extracted through the open neck. From the custom among the natives of presenting their guests with one of these bottles furnished with a hollow stem, to be used as a syringe after meals for squirting water into the mouth, the Portuguese gave the name of *seringat* or syringe to the gum and also to the tree which produces it. The moulded articles are brought into Para suspended on poles to keep them from touching each other, as for a long time they continue sticky. Beside great quantities of this substance which leaves Para in other forms, the exportation of shoes alone has amounted for years past to about 800,000 pairs annually. ("Brazil and the Brazilians," by Kidder and Fletcher, p. 558.)—It is not only prepared in various moulded forms, as bottles, toys representing animals, rudely shaped shoes, and in flat cakes also for exportation, but a method has been devised by Mr. Lee Norris, of New York, for preserving the juice, as it comes from the tree, and shipping this in air-tight vessels of tin or glass. The liquor is first filtered and mixed and well shaken with about  $\frac{1}{4}$  of its weight of strong ammonia. On being poured out upon any smooth surface, and exposed to a temperature of 70° to 100° F., the ammonia, which preserved it from the action of the oxygen of the atmosphere, evaporates, and leaves the gum in the form of the object which holds it. It has in this state a pure white appearance. The juice is of a pale yellow, of the thickness of cream, of a sourish odor, and of specific gravity 1.012. The pure caoutchouc, which separates from it, rising like coagulated albumen to the surface, as the mixture of the juice with water is heated, has the specific gravity of only 0.925. This being skimmed off like cream, as it forms, is found to constitute about 82 per cent. of the juice. It may also be precipitated by salt or hydrochloric acid. On being pressed between folds of cloth and dried, it becomes transparent. It swells by long-continued exposure to boiling water, but regains its form after being removed some time. Alcohol does not dissolve it, but precipitates it from its solution in ether. Oil of turpentine, coal naphtha, and benzole are among its best solvents, as also the liquid hydrocarbon, called caoutchoucine, obtained by distilling the crude caoutchouc. The weak acids and alkaline solutions have no effect upon it. On evaporating its solution, the substance is recovered in some instances elastic and dry as before, so as to serve the purposes of a varnish, which possesses the properties of the original juice; or it is obtained in an adhesive, inelastic state. By some of the English authorities its solution in linseed oil, in the proportion of 4 oz. of gum to 1½ lb. of oil, is recommended as an excellent varnish for making leather water-tight; but Booth states that it is not soluble

in linseed oil, nor in the oils of lavender, cloves, and cinnamon.—At the temperature of about 248° F., caoutchouc melts and remains in a sticky condition, unless long exposed to the air in thin layers. It readily inflames and burns with much smoke. Its elasticity is very remarkable; and when a piece of it is stretched, heat and electricity are evolved. If a piece is kept distended for 2 or 3 weeks, its elasticity is lost; exposure to temperature as low as 40° produces the same effect; but the application of a gentle heat immediately restores it. This property is taken advantage of in the manufacture of elastic textile fabrics, woven of the inelastic threads, which are afterward made elastic by heat. At 600° it is partially volatilized, and the vapor when condensed is the oily substance called caoutchoucine, which has been before mentioned as a good solvent of caoutchouc.—According to the analysis of Prof. Faraday, the gum is a hydrocarbon consisting of 8 equivalents of carbon and 7 of hydrogen, which would require the proportion of 87.27 of carbon and 12.73 of hydrogen in 100 parts. The numbers found by him were respectively 87.2 and 12.8. The juice, as obtained from the tree, gave in 100 parts—

Water containing a little free acid.....	54.37
Caoutchouc.....	51.70
Albumen.....	1.90
Wax.....	trace
A nitrogenized body soluble in water....	7.13
A substance insoluble in water.....	2.90
	100.00

Caoutchouc was long known before its most valuable qualities were appreciated. Dr. Priestley refers to it in the preface of his work on "Perspective," printed in 1770, as a substance which had just been brought to his notice, as admirably suited for rubbing out pencil marks, and as being then sold at the rate of 8 shillings sterling for a cubical bit of about  $\frac{1}{4}$  an inch. It was afterward applied to the preparation of varnishes. The chemists soon found how well adapted it was to connect with flexible joints the glass tubes required in their operations; a thin sheet freshly cut being laid around the ends of 2 tubes, and slightly pressed together, adhered, as if it were originally made in this cylindrical form; or, as usually practised, the slip is folded around a single tube, and the 2 ends lapped upon each other being cut with scissors instantly unite; this may then be slipped over other tubes. It came then to be used to render cloths water-proof, and as its properties and those of its compounds with sulphur, for example, were better understood, it was found to be adapted to a multitude of uses. Its elasticity and flexibility were qualities required in many important surgical instruments, some of them of tubular form. The elastic bands and threads found numerous applications in the arts and trades; by the bookbinder they have been used for securing the leaves of books, giving flexibility and freedom of opening to the volumes; and for a great variety of springs they have taken the place of steel. Upon the English rail-

ways the elasticity of caoutchouc in gradually resisting compression, has caused it to be made into buffers, which reduce the jar caused by the railway carriages striking together. In the same way it is used in this country in piles of circular disks for the springs upon which these carriages rest; and a patent has been granted here for laying the rails themselves upon the same material. By reason of its density and flexibility, it is suitable for many of the uses to which leather has been applied; while its imperviousness, and resistance to the action of substances which destroy leather, give it some important advantages over this material. This is particularly the case in the packing of metallic joints to render them steam-tight. In thin sheets it has been used for taking impressions of engravings. In this form it is an excellent material for covering the mouths of bottles, and for other applications requiring the exclusion of air and moisture. In a melted state it makes lutes that are of service in chemical operations; and it may also be moulded and hardened into ornaments of intricate forms. It makes with other ingredients a cement, called marine glue, which is unsurpassed in adhesiveness when applied to join surfaces of wood, and is not affected by moisture. Masts of vessels have been so firmly spliced by its varnish, that when broken, the fracture is always found to be in the whole wood. It has been stated that the timbers of a ship might be more strongly glued together by it, than they are held by bolts. To make this glue, a pound of small fragments of caoutchouc is dissolved in about 4 gallons of rectified coal tar naphtha, the mixture being well stirred. In 10 or 12 days, when the liquid has acquired the consistence of cream, twice its weight of shell-lac is added. It is then heated in an iron vessel having a discharge pipe at the bottom. As it melts it is kept well stirred, and the liquid flowing out is received upon slabs, and thus obtained in the form of thin sheets. It is applied after heating it to 248° F., with a brush, being kept sufficiently soft after spreading, by passing iron rollers of the temperature of 150° over the surface, as may be necessary, until the joining is made. In England, blocks of caoutchouc combined with other substances have been used for paving stables, lobbies, and halls. The entrance for carriages to Windsor castle is thus paved. Among the most prominent of the numerous other uses of this valuable substance, alone or in combination, may be named machine belting, water pipes or hose, baths and dishes for photograph and chemical purposes, coverings of telegraph wire, boots, shoes, toys, life preservers, clothing, furniture covers, travelling bags, tents, beds, water pails, &c., &c. New uses are constantly discovered for it, as new properties are developed in the various chemical and mechanical modes of treating the article.—For most of the purposes to which it is now applied, it is either uncombined with other substances, or it is in the form of a sulphuret of caoutchouc, or what is called the

vulcanized caoutchouc. To prepare this compound, the crude article is cut into little pieces and thoroughly cleansed from its impurities and adulterations by a series of washing by water, steam, and mechanical applications. By the English process, the little pieces are ground and torn with iron teeth in a cylindrical mill of cast iron, which is so small that 5 lbs. of caoutchouc make a charge. So much heat is developed in this process, that cold water introduced to wash the substance is soon made to boil. It is then ground dry in another mill furnished with chisels, which cut into the mass and open a passage for the escape of the confined air and steam, which burst out with frequent explosions. A little quick-lime is worked into it in this mill. In other machines it is kneaded and compressed in various ways, and finally a number of the balls thus treated are brought together and powerfully squeezed by a screw press in cast iron moulds, in which being firmly secured the mass is left for several days. This process is somewhat modified in different establishments. In some the mill is not used, but the cleaned shreds are rolled into sheets, from which threads and thin sheet rubber are sliced by the application of suitable knives worked by machinery and kept wet. The sheets are at once ready for the purposes to which this form is applied, or by machinery of great ingenuity they are cut into long threads of any desired degree of fineness. If then required to be joined, a clean oblique cut is made with a pair of scissors, so as to expose a fresh surface upon each piece, and on their being brought together and pressed with the fingers, they at once form a perfect union, provided no moisture or grease has reached their surfaces. As the threads are reeled off, they are deprived of their elasticity by running between the moistened fingers of a boy, who presses them so that they are elongated at least 8 times. After remaining on the reels some days, the threads are wound upon bobbins, and are then ready for weaving or braiding. The threads are of various degrees of fineness, a pound of the caoutchouc making by one machine a thread 8,000 yards in length, which by another machine is divided into 4, making 82,000 yards from one pound. Elastic braids are made by covering the caoutchouc with threads of silk or other material. In woven fabrics, caoutchouc threads make the warp, while the weft or cross threads are of silk, cotton, or linen. The stuff is made elastic by passing a hot iron over it, which causes the caoutchouc to shrink and regain its elasticity. Too great extension of the articles, by which the gum would be stretched so as to destroy its elasticity, is prevented by making alternate threads of the warp of the same material as the weft, so that these shall receive the strain. By the process of Messrs. Aubert and Gérard, of Grenelle near Paris, a perfectly cylindrical thread is obtained of any size and length. The caoutchouc after being cleaned is converted into a paste of the consistence of that made with

flour, by macerating it 12 or 15 hours with about twice its weight of sulphuret of carbon, to which about 5 per cent. of alcohol is added. The paste is well kneaded by compressing it through diaphragms of wire gauze placed in strong cylinders, and is then forced through a line of small holes at the bottom of another cylinder. The threads as they issue from these holes are taken on a web of velvet, from which they pass to another of common cloth, and are carried slowly along for 600 or 700 feet, when they have become dry and hard by the evaporation of the solvent, and are received each one in a little cup. Another kind of thread is that produced by the vulcanizing process, of which an account will be given further on. These, retaining their elasticity, are woven only as they are kept extended by weights. In their use the shirred or corrugated fabrics were first produced by the shrinking of the threads drawing back the surfaces of the cotton or other material to which they were applied.—The water-proof fabrics, known in Great Britain from the name of the inventor as Mackintoshes, are made by coating any cloth on one side with a layer of caoutchouc varnish; or sometimes 2 strips of cloth thus coated are laid together and compressed till they form one body, with the caoutchouc interposed between the 2 parts. The disagreeable odor which these stuffs commonly retain, is left by the coal-naphtha, turpentine, or other solvent employed to liquefy the caoutchouc. Could the natural juice be applied, as it comes from the tree, and its inspissation take place upon the cloth, the dissolving process and its disagreeable effects would be avoided. The steam from heated aromatic extracts, and the smoke arising from their combustion when made into pastilles, as also the fumes of sulphur mingled with the vapors of ammonia and alcohol, have been used with more or less success to deodorize these fabrics. They are also sometimes immersed in disinfecting fluids with the same object.—Vulcanized caoutchouc, which is a combination of this substance with sulphur, was first prepared by Mr. Charles Goodyear of New York, to whom a patent was granted in February, 1839. He afterward patented another process by which lead was also introduced, in the form of white lead, into the mixture, the white lead and sulphur being ground as in preparing paint, 7 parts of the former to 5 of the latter, and then mixed with 25 parts of caoutchouc dissolved in some essential oil. The lead has the effect of rendering the compound more compact and heavy. Perhaps all the peculiar chemical properties, for which this material is so remarkable, are as advantageously obtained by the simpler mixture of sulphur and caoutchouc. The compound of sulphur and caoutchouc is remarkable for possessing a higher degree of elasticity than caoutchouc alone, and for retaining this at low temperatures, even below the freezing point; neither is this property lost by the substance being frequently stretched. It also bears a high degree of heat without

change; at a temperature above 280° F. it is charred, but it will not melt, unless exposed to flame. In its preparation, after the ingredients have been well incorporated together, it is heated in close vessels to nearly its charring point, the effect of which is to give it, beside its more perfect elasticity, a power of resisting the action of the solvents which liquefy the natural product, and also to greatly increase its resistance to the action of acids and other corrosive fluids. Its adhesiveness is lost, so that freshly cut surfaces cannot be made to unite. The combination with sulphur has also been effected by exposing the rubber to the action of sulphurous fluids, as the sulphuret of carbon and the chloride of sulphur. An immersion for 1 or 2 minutes in a mixture of 30 or 40 parts of sulphuret of carbon to 1 of chloride of sulphur, it is found, will serve to vulcanize caoutchouc, this being subjected to the usual high heat. While at this temperature, if compressed into moulds, as those used in forming shoes, the form is retained on cooling. Magnesia also has been applied by Mr. Goodyear, it is said, for the purpose of giving that degree of hardness to the material, which renders it well adapted for the manufacture of fancy boxes, combs, canes, buttons, knife-handles, &c., its appearance and tenacity being like that of horn, but its elasticity has disappeared. Sulphur in the proportion of 1 part to 8 of caoutchouc is probably all that is essential to give the hardness, provided the mixture be exposed to a sufficiently high temperature for a long time. Magnesia and some other matters introduced have the effect to lighten the shade. The heat is applied to the articles buried in pulverized soapstone by the introduction of highly heated steam.—In the different manufactories of this article a great variety of processes have been introduced, and a high degree of chemical skill and of mechanical ingenuity has been applied to perfect the operations. The highest success, as is shown by the superior reputation of the goods even in the English markets, has been attained in the American establishments, the credit of which is due to the untiring perseverance and ingenuity of Mr. Goodyear. The following table presents the U. S. imports and exports of caoutchouc during 1856 and 1857:

	Year ending June, Same period, 50, 1856.	1857.
Imp. of manuf. caoutchouc.....	\$97,796	\$180,585
“ unmanuf. “ .....	1,045,576	882,058
Total impa. into U. S. from foreign countries.....	\$1,143,373	\$1,012,643
Re-exported of the foreign import of manuf. caoutchouc.....	\$18,379	\$22,596
Re-exported of the for. imp. of unmanuf. caoutchouc.....	120,302	64,491
Exports to foreign countries of home-made caoutchouc shoes (685,990 pairs).....	437,986	531,125*
Exports of other manufs. of caoutchouc.....	605,602	512,387
Total expa. U. S. to for. countries	\$1,332,719	\$770,596

\* 887,325 pairs.

England imported from foreign countries, from Jan. 1 to June 1, 1857, 5,488 cwt. of caoutchouc, and during the same period of 1858, 9,155 cwt.

CAPE, the extremity of a portion of land projecting beyond the general line of the shore.

CAPE ANN, the S. E. point of the town of Gloucester, Essex co., Mass., the N. limit of Massachusetts bay. The whole of the rocky peninsula forming this part of Gloucester is also called Cape Ann, including the village of Squam in its N. E. part. This peninsula is a headland of sienite, which forms low hills, over the surface of which the rock is very generally exposed to view. The lands are strewn with the greatest profusion of bowlders, many of great size; and beds of pure white sand are intermixed with the ledges and bowlders. Valuable quarries of sienite for building purposes are worked most conveniently for shipment. The place is much exposed to the prevalent N. E. storms; but it offers a small, well-sheltered harbor among the rocks, where coasting vessels often take refuge. There are on the shores of this harbor 2 fixed lights, 500 to 600 yards apart, and 90 feet above the water. Lat.  $42^{\circ} 88' 18''$  N., long.  $70^{\circ} 34' 42''$  W. Distance from Boston 81 m., N. E. by E.

CAPE BABELMANDEB, formerly called Jebel-Manhali, is a conical basaltic rock, 865 feet high, on the N. side of the strait of the same name, between the shores of Arabia and Abyssinia, uniting the Red sea with the Indian ocean.

CAPE BEARN, a promontory of France, on the Mediterranean. On Mount Béarn, which forms its summit, is a first class light-house.

CAPE BLANCO, or OXFORD, near the S. W. part of Oregon territory, is near the mouth of Rogue river on the Pacific coast.

CAPE BOEO (anc. *Lilydæum Promontorium*) is on the W. coast of Sicily, 1 mile from Marsala. It is the point of Sicily nearest to ancient Carthage, and at an early period became an important naval station. The naval victory of the Romans over the Carthaginians, which put an end to the first Punic war, was gained near this point.

CAPE BOJADOR, of western Africa, is formed by the termination of a range of Mount Atlas, and until doubled by the Portuguese in 1483, had long been the S. limit of European navigation.

CAPE BON, or Ras ADDER, a headland of Tunis, on the Mediterranean, is the northernmost point of Africa.

CAPE BRETON, a British American colony S. E. of the gulf of St. Lawrence, lying between lat.  $45^{\circ} 27'$  and  $47^{\circ} 5'$  N., and between long.  $59^{\circ} 40'$  and  $61^{\circ} 40'$  W.; area 8,120 sq. m. It is divided from the mainland by the gut of Canso and St. George's bay. The island contains some high land, and the coast is well indented with harbors. The Bras d'Or is a remarkable inlet of the sea, which almost divides the island into 2 parts, and occupies a very large part of the insular outline. It is 55 m. long and 20 m. wide, and varies from 70 to 300 feet in depth. In it there is an island

called Boulardrie island, which contains a little Bras d'Or. Beside these sea-water gulfs, there are several fresh-water lakes in the island. Granite is found at the Bras d'Or, gypsum in various parts. Coal in large quantities exists in the island, and upward of 50,000 tons were raised in 1851. A rich iron ore is also found. There are about 64,000 acres of land under cultivation, producing cereals and root crops, with butter and cheese. There is a boundless supply of salt and fresh water fish. The inhabitants are occupied in agriculture and fisheries; they also carry on domestic manufactures of cloth and flannels. The number of vessels built in 1851 was 24, tonnage 2,593, and of boats 469. The value of imports that year was about \$150,000, and of exports \$260,000. Entrances, 476 vessels, tonnage 43,848; clearances, 377 vessels, tonnage 35,570. The vessels employed in the fishery of 1851 numbered 21, tonnage 453, with 83 men; and the boats 654, with 1,293 men. The quantities of fish cured were: dry-fish, 21,458; salmon, 844 barrels; shad, 93 barrels; mackerel, 9,428 barrels; herring, 6,118 barrels; alewives, 53 barrels; while the fish oil obtained amounted to nearly 25 per cent. of the quantity furnished by the other parts of Nova Scotia.—The first settlement in the island was made in 1712, by the French, who called it *Ile Royale*, and who constructed 8 years afterward the fortification of Louisbourg, on the S. E. coast. It was taken from them by the British colonists of New England in 1745, and is now included within the government of Nova Scotia, returns 2 members to the Nova Scotia house of assembly, and is divided into 3 counties, namely Cape Breton, Victoria, and Inverness. Pop. of both counties in 1851, 27,580; 11,493 of whom are Roman Catholics, 8,968 members of the Free church, 3,453 of the church of Scotland, 2,156 of the church of England; the Presbyterian church of Nova Scotia, 106; Baptists, 581; Methodists, 685; Independents, 73; the rest consisting of other denominations, with a small sprinkling of native Indians.

CAPE CARTHAGE, a promontory of N. Africa, in the Mediterranean. Traces of the ancient city of Carthage are found near it.

CAPE CATAOCH, a headland at the N. E. extremity of the peninsula of Yucatan, Central America. It was on this spot that the Spaniards first landed on the American continent, and Bernal Diaz tells us that within 6 miles of the cape they saw a large town which they named Grand Cairo.

CAPE CHARLES is at the N. entrance of Chesapeake bay, and forms the S. extremity of Northampton co., Va. N. E. of it, on Smith's island, is a light-house with a revolving light.

CAPE CLARENCE is a headland at the N. extremity of Jones's sound, Baffin's bay. It is surrounded by inaccessible mountains whose summits are covered with perpetual snow.

CAPE CLEAR, a headland of co. Cork, Ireland, is on an island of 1,506 acres, with a light-house on an abrupt cliff 455 feet high.

**CAPE COAST CASTLE**, a town and fort of Africa and capital of the British settlements on the coast of New Guinea; pop. about 10,000. The town is regularly built, in a well-wooded but poorly watered district, and has a damp, unhealthy climate. It exports gold dust, palm oil, maize, and tortoise shell. The settlement is governed by a president of council and subordinate officers. The fort, which is the best on the coast, stands on a granite rock projecting into the sea, and has near it 2 small outposts called Fort William and Fort Victoria.

**CAPE COD**, the sandy peninsula making the S. E. extremity of Massachusetts, and (excepting the neighboring islands) co-extensive with Barnstable co., already described. This tongue of land, commencing at the line between Plymouth and Sandwich, extends E. about 35 miles, its width beyond Sandwich rarely exceeding 8 miles. It then bends to the N. and gradually to the N. W., extending about 80 miles further. The curve still continues around to the W., S., and E., enclosing the fine land-locked harbor of Provincetown. This latter portion does not average half the width of the former, and is greatly indented by bays, both on the outer and inner sides. The northern extremity is called Race Point. On this there is a revolving light 155 feet above the level of the sea, in lat.  $42^{\circ} 8' 40''$  N., and long.  $70^{\circ} 14' 48''$  W. There are, however, many other light-houses upon the cape, and the so-called Cape Cod light is on the Clay Ponds (highlands), 200 feet above high-water mark, in lat.  $42^{\circ} 8' 24''$  N., and long.  $70^{\circ} 4' 18''$  W. This is a fixed light. Cape Cod bay is the body of water included in the arm of the cape and opening into Massachusetts bay on the N.—Cape Cod was discovered May 15, 1602, by Captain Bartholomew Gosnold, of the bark Concord of Dartmouth, in an expedition of discovery, made principally at the expense of Henry, earl of Southampton, friend and patron of Shakespeare. To the "mighty headland," as he called it, he gave the name of Cape Cod, from the quantity of codfish taken off its shores. His people landed and spent a day wandering about—the first authenticated visit of whites upon the coast of Massachusetts. Captain Gosnold cruised around outside the cape to Buzzard's bay, and landing on one of the Elizabeth islands spent some weeks exploring, and taking in assafra, with which he returned to England. The next year, 1608, another English expedition, employing 2 vessels, 1 of 50 and 1 of 26 tons, made the same voyage, passing also along the cape. It continued to be known to the occasional voyagers of this period; but on Nov. 9, 1620, it was especially made memorable by the arrival of the Mayflower, which brought to New England the first company of permanent settlers, and the next day cast anchor in the harbor of Provincetown. Here, on the 11th, before the company disembarked, was drawn up and signed by the males the since famous compact, by which they became a body politic, subject "to such government and gov-

ernors as should by common consent" be chosen. At that time the extremity of the cape does not appear to have been so entirely destitute of agricultural interest as it has since become. The pilgrims found on the shores patches where the Indians had planted corn, and obtained supplies of the grain. Mention, too, is made of their bringing back to the vessel a boat load of juniper. The lower portion of the cape is for the most part a waste of barren sand-hills, covered only here and there with a little beach-grass; among them are found numerous ponds, by the sides of which a little arable land is occasionally obtained; and along the shores are extensive salt-water marshes. Toward the head of the cape pitch-pine and oak trees of several species form extensive forests, in which the pines predominate. In Sandwich and Plymouth is a wide range still occupied by the wild deer, the only place in Massachusetts in which they have not been exterminated. The cape is more destitute of rocky formations than of trees. Not a ledge raises itself anywhere above the sand, nor is one met with by sinking wells, until passing in a northerly direction beyond the bounds of Plymouth. Boulders are abundant, and often of great size, particularly near the head of the cape. The depth of sand is nowhere known. About Provincetown it is kept in motion by the winds, and its hills are shifting dunes. The curved form of the extremity suggests the possibility of its having been produced by the prevalence and preponderance of the N. E. winds, the heavy surf rolling up the sands upon the shore, and the winds moving them gradually toward the S. W.—Though a sandy district, the cape is no barren waste; its numerous bays furnish many harbors, and about these are pleasant and thriving villages of intelligent and enterprising people. Their chief means of support are navigation, fishing, and the manufacture of salt. These towns are the nurseries of seamen, and have furnished the masters of many of the best ships of the American merchant service. They belong to the class referred to by Edmund Burke in his address to the house of commons in 1774, a class then as now favorably known in all parts of the world: "No sea that is not vexed by their fisheries; no climate that is not witness of their toils. Neither the perseverance of Holland, nor the activity of France, nor the dexterous and firm sagacity of English enterprise, ever carried their most perilous mode of hardy industry to the extent to which it has been pursued by this people."

**CAPE COLONY**, or **CAPE OF GOOD HOPE**, a colony of Great Britain in the southernmost portion of Africa, between lat.  $28^{\circ} 38'$  and  $34^{\circ} 51'$  S., long.  $18^{\circ}$  and  $28^{\circ}$  E. Area estimated by British authorities at 250,000 sq. m., though it does not exceed 200,000 according to the best German geographers. It is bounded N. by the Gariep, or Orange river, N. E. and E. by the Keiskamma, Great Kei, and Kraai, or Grey river, S. E. by the Southern ocean, S. and W. by the Atlantic. Its greatest length from the Cape pen-

insula to the mouth of the Keiskamma river is over 600 m., its breadth over 400 m. The formation of the surface is that of a terraced country rising from the S. coast by a series of parallel chains of rugged and barren mountains toward the broad table-land which extends from the Orange river N. far beyond the tropic. This table-land is marked off to the S. by a mountain range sweeping from lat. 30° in a crescent-like form 2° 30' S., then E. and N. E., where it connects with the Amatola mountains of Caffraria. Portions of this range are the Roggeveld (rye-field), Nieuwveld (new-field), and Sneeuw (snow) mountains, the highest peaks of which rise to an elevation of 10,000 feet above the level of the ocean. The flats lying back of this girdle of mountains have a hard, clayey soil, without any vegetation except in the vicinity of the Orange river. The 2d terrace (going from N. to S.) consists of the Rough Roggeveld, the Warm (or low) Bokkeveld, the Cold Bokkeveld, and the Great Karroo, a sort of table-land or elevated basin, thinly covered with an argillaceous soil, largely impregnated with iron upon a substratum of rock or gravel. This arid plain, covering an area of over 20,000 sq. m., at a medium height of 3,000 feet, is for  $\frac{1}{2}$  of the year as hard as baked brick, and almost without any vestiges of vegetation. Only in early spring, when the rain, descending in torrents, fills the otherwise empty river beds to overflowing, plants appear with surprising rapidity. The W. descent of the 2d terrace is formed by the Kamis and Tulbagh chain, which begins at the mouth of the Elephant river, in wild and craggy isolated rocks of most singular forms, which, coming more closely together as the range sweeps to the E., at last unite in the compact mass of the Karroo. The S. descent is formed by the Zwartberge (Black mountains) running nearly 400 m. from W. to E., and by a parallel chain running (under the names of Zwellendam, Uteniqua, and Zitzikamma mountains) from Worcester S. E. to Zwellendam, thence E. about 200 m. to the mouth of the Great Fish river. The average height of these ranges is 4,000 feet; their greatest elevation, 6,500 feet. The 3d or lowest terrace is the coast district, the S. W. corner of which is filled by the rugged and precipitous Table mountain (3,582 feet), while the Hottentot Holland, or Drakenstein range, radiating near Worcester from the Tulbagh and the Zwellendam chains, sweeps in a southerly direction to the E. coast, terminating in Cape Hanglip. Between this range and the Cape peninsula or Table mountains, there extends a broad sandy plain, the Cape flats, from which it would appear probable that in former times the peninsula was surrounded by the sea. The mountains belong to the sandstone formation, resting upon a basis of granite. Where the granite rises above the level of the surrounding country, it gives rise to many streams of water, but otherwise aridity prevails.—Rivers are numerous, but very few of them are navigable. The more important

flowing into the sea on the S. coast are the Breede (Broad) river, the Gauritz or Krym, the Gamtoos, the Sunday, the Bushman's, the Great Fish, and the Keiskamma rivers; on the W. coast the Great Berg river, and the Olifant or Elephant river. The Orange river (discovered in 1777 by Capt. Gordon, and named in honor of the dynasty of Orange), having a length of 1,900 m., an average width of 1 m., and during the rainy season a depth of 50 feet, flows through the larger part of southern Africa from E. to W.; but only on its upper course is it reached by the colony. The Great Fish river (the *Rio Infante* of the Portuguese) rises about 950 m. from its mouth. But nearly all the rivers in the colony have the characteristics of wild torrents, drying up almost entirely at times, or leaving only shallow pools of brackish water, and again swelling to a formidable height, filling their courses, which have more resemblance to deep ravines than river beds, to their utmost capacity. In consequence of these deep beds, most of the rivers are not even suitable for the purpose of irrigation.—The coast is indented by several bays, viz.: Table bay, False bay, Mosel bay, Algoa bay, and Waterloo bay. The southern coast is full of reefs, and a large bank (Lagullas) extends to lat. 37° 30' S., rendering the navigation difficult and dangerous.—Two-fifths of the soil of the colony consist of arid ridges and sandy plains; of the remainder, a large portion affords excellent pasture for horses and cattle, but is unfit for agricultural purposes on account of the want of irrigation. The S. W. districts are the most fertile, producing grain and wine in abundance; extensive forests cover the S. slope of the Uteniqua and Zitzikamma mountains, but the interior of the country is not inviting. It consists of the roughest mountain scenery, barren and parched plains, valleys without trees or water-courses, the very picture of dreariness and desolation, forming a remarkable contrast to the beautiful scenery of Natal and Caffraria. But these drawbacks are in some degree balanced by the most salubrious climate to be found in the world. For those whose health has been shattered by the climate of India a residence at the Cape is an almost unfailing cure. During the summer (Sept. to April), the temperature varies from 70° to 90° F., and the atmosphere is steadily cooled by S. E. winds. The extremes of temperature in the winter or rainy season are 40° and 60°. The mean of the year is 65°. The deficiency and irregularity of rains in the terraced plains of the interior is one of the greatest impediments to agriculture. In some tracts, bordering upon the Great Karroo, there has been no rain during 3 years, but when it does come it descends in torrents that swell the smallest streams to extraordinary magnitude.—The colony is not very rich in mineral products. Salt abounds near Algoa bay and Sebastian's bay; copper ore has been worked within the last 6 or 8 years with considerable success; iron ore and coal have also been found; galena in the

district of Ujtenhage; manganese in the district of Albany. Lime is prepared in large quantities from fossil shells, of which extensive beds have been found in the district of Ujtenhage.—The vegetation of the Cape colony is extraordinary in richness and variety. It is wholly different from that of tropical Africa, and more similar to that of Australia, though the gum tree, one of the prominent features of the Australian flora, is wanting at the Cape. Bulbous plants and heaths grow in beautiful varieties, also *proteacea*, *restiacea*, and *euphorbia*. Timber is scarce. Of indigenous fruits there are few; but all kinds of fruit introduced from Europe are grown in abundance.—The fauna comprises a great variety of wild animals, such as the elephant, rhinoceros, hippopotamus, lion, leopard, hyena, jackal, zebra, quagga, masked boar, antelope, monkey, raccoon, squirrel; but most of these have become rare in the thickly settled portions of the country. Only on the immense table-land back of the 8d mountain range the antelope, elk, springbok, and elephant still roam in herds of incredible numbers. Yet even there hunting is very difficult. The Cape buffalo (*bos Caffer*), a powerful and untamable animal, has disappeared from the plains, and is only met with in the recesses of the mountains. Ostriches abound on the Great Karroo. Large herds of elephants are found in Natal. As both sexes of them have tusks of extraordinary size, they are eagerly hunted by the settlers. The hippopotamus is also hunted on account of his tusks, which are even higher in price than those of elephants. Of domestic animals only sheep and dogs are indigenous. Horses, asses, mules, goats, and cattle have been introduced from Europe. Beside many kinds of birds of prey, the country produces pelicans, flamingoes, cranes, ibis, snipe, quails, partridges, in numerous varieties. Fish of all kinds abound on the coast and near the mouths of the rivers.—The entire population of the colony was, in 1856, stated to be 270,000. Of this number about 120,000 were persons of color, and 150,000 whites. The colored population consists of Hottentots or Quasquas, Caffres or Fingoes (a nickname meaning poor people, given to them by their former adversaries, the Zulu Caffres), negroes, and Malays, the descendants of Malay slaves introduced in former times by the Dutch. The Hottentots are a weak race, of small stature (less than 5 feet), a yellow-brownish complexion, and repulsive features, confirming by their appearance the opinions of the old Dutch colonists that they are only a connecting link between man and monkey. Those living in the colony have learned to discontinue many of the most filthy and disgusting habits of their savage brethren, but are lazy, shiftless, and intemperate. Since, by the abolition of slavery, they have been put on an equal footing with the whites, their number has rapidly diminished. The Hottentot half-breeds are more industrious and intelligent. The negroes, mostly descend-

ants of former slaves or rescued from the slave-traders by the British cruisers, are perhaps still more vicious than the Hottentots. They abhor steady labor, and prefer to sustain a vagabond life by pilfering. The Malays are industrious, skilful, and thriving, but at the same time very passionate, vindictive, and violent. They profess the Mohammedan religion. A cross of the Dutch and Malays, generally named *Africanders*, are remarkable for the beautiful forms of their women. The Fingoes, about 25,000 in number, formerly inhabited the country S. W. of Port Natal, whence they were driven by the powerful Zulu tribe. They are rapidly advancing in civilization. Among the white inhabitants of the colony the Dutch element largely predominates. While the British for the greatest part live in the towns and cities as merchants, shopkeepers, military and civil officers, &c., the large majority of the farmers are descendants of the original Dutch colonists. These Boers, as they are called, have preserved the leading characteristics of their Dutch ancestors; they are a sturdy, cool-tempered, steady, and energetic race; thrifty, industrious, and of good moral character. The tenacity with which they cling to their customs, their local institutions, and their national character, long rendered them objects of the strong antipathy of the British, an antipathy heartily reciprocated by them. But within the last decade the mutual hatred and distrust have been greatly diminished. Those Boers who live at the outposts of civilization in the immediate vicinity of the savages, are, however, naturally in some degree savages themselves. The Boers are generally well educated, and there are scarcely any among them who cannot read and write the Dutch language. They are also pious and strict observers of all religious customs. Most of the men are tall and herculean in appearance; of the young women many are distinguished for a sort of majestic beauty; but at an advanced age both sexes incline to obesity. According to the 3 principal products of their industry they are known as Wine Boers, Corn Boers, and Cattle Boers. The Wine Boers are the wealthiest. Agriculture is still in a very primitive state, it being impossible to apply skilful and complicated implements on account of the difficulty of having them repaired or replaced. The Cattle Boers are the least educated and worst mannered of the whole class.—According to Herodotus, it is probable that the Cape of Good Hope was discovered by Phœnician navigators as early as 610 B. C. It was 2,096 years later when the Portuguese Bartholomew Diaz reached it. On Nov. 20, 1497, Vasco da Gama rounded the cape and pursued his course to India. But the Portuguese did not pay any attention to the Cape country. It was not before A. D. 1600 that the Dutch East India company established a colony there, in order to raise provisions for vessels going to India. In 1652 Cape Town was strongly fortified. The colony prospered admirably in spite of continued hostilities between



the settlers and the native tribes. An attack of the British during the American revolutionary war was repulsed, but in 1795 the colony was conquered by the British forces under Admiral Elphinstone and Gen. Clarke. Though restored to Holland in 1808, it was annexed once more to Great Britain in 1806, and finally ceded by Holland in 1814. The application of the British colonial system to the Cape country, the curtailment of the privileges formerly enjoyed by the settlers, the emancipation of the Hottentots in 1830, and the general tendency of the British rulers to put the savage native tribes on an equal footing with the settlers, disgusted the Dutch Boers, who after a protracted struggle of more than 20 years succeeded in establishing 2 independent republics beyond the boundaries of the colony. (See *BOERNA*.) Beside these movements of the Boers, the history of the Cape colony under British rule consists mainly of wars with the Caffres. Five distinct wars were carried on against them, viz.: 1811-'12; 1819, by which the boundary of the colony was extended to the Keiskamma river; 1835, when the country lying between the Keiskamma and Kei rivers was annexed to the colony, but afterward restored; 1846-'48, in consequence of which the country between the Keiskamma and Kei rivers was constituted by Gov. Sir Harry Smith as a vassal state under the name of British Caffraria; and 1850-'58, when a formidable insurrection of the Caffres, resembling in many respects the Indian rebellion of 1857, was suppressed with great difficulty and after many reverses of the British arms. In order to tranquillize the Caffres and to keep them in permanent subjection, the British government established in 1856 and '57 a military colony in British Caffraria, consisting of several thousand members of the German legion, which had been organized during the oriental war by Gen. Stutterheim. Nevertheless, in the spring of 1858 one of the most powerful Caffre chieftains, Mosheesh, chief of the Bosutua, who number about 20,000 warriors and had been subjected by the British in 1853, rose in arms against the Orange river republic, and it was anticipated that he would also invade the neighboring British province.—Ever since the emigration of the Boers great discontent had prevailed in the colony because of the want of a free representative government. When, in 1848, the British government proposed to send a number of convicts to the Cape, this discontent grew almost into open rebellion, compelling the government to desist from its purpose. It became evident also, during the Caffre war of 1850, that the colonists were unwilling to sustain a government which denied them rights that had been granted to the inhabitants of other colonies. Having at last become aware of this state of things, the British government in 1858 yielded to the demands of the colonists, and granted them a constitution which from an English point of view is very liberal. The colony is divided into 2 provinces, the western, comprising 8 di-

visions (counties), and the eastern, comprising 10 divisions. The western province includes the capital, Cape Town. Other important places are Wynberg, Constantia (whence the famous Constantia wine derives its name), and Simon's Town. The whole Cape peninsula (82 m. long, 6 to 8 m. broad) is included in the western province.—The eastern province is a comparatively new country, having hardly been settled before 1820, when 5,000 Scottish emigrants were sent there by the home government. The principal towns are Graham's Town and Port Elizabeth. Every division is presided over by a civil commissioner, who acts also as resident magistrate, or justice of the peace, possessing a limited civil and criminal jurisdiction. Many divisions are subdivided into districts, each with a resident magistrate of its own. The districts are again subdivided into feld cornettes, in which the feld cornets (meaning high bailiffs or chief constables) are the principal officers. The legislative authority of the colony is held by the governor, who is appointed by the crown, and 2 chambers called legislative council and assembly. Eight members from the western and 7 from the eastern province, chosen for a term of 10 years by the whole body of electors in each province, upon a general ticket, constitute the council, but no one can be elected who is not in possession of £1,000 worth of landed property or £2,000 worth of landed and personal property together. Any elector may give to one candidate as many votes as there are candidates to be chosen. The members of assembly, 46 in number, are elected for a term of 5 years by towns and election districts. The qualification of electors is the occupation of fixed property worth £25. The governor may dissolve both houses or only the assembly. The queen may disallow any bill assented to by the governor, within 2 years of its receipt.—The colonial government contributes to the support of clergymen of most of the Christian denominations. The number of members of the principal denominations was in 1854: Dutch Reformed 60,000, church of England 12,000, Wesleyans 10,000, Roman Catholics 3,500, Independents 7,000, Lutherans 1,500.—Free schools are provided for in every district. There are also 2 colleges in the colony.—The industry of the colony is inconsiderable. Manufactories of soap, wagons, hardware, and hats produce scarcely enough for home consumption. The internal commerce is not yet much developed in consequence of the want of means of communication, but the import and export trade has greatly increased under the British rule, as may be seen from the following table:

	Imports.	Exports.	Tonnage.
1836.....	2541,093	2362,220	124,875
1840.....	732,424	775,040	124,423
1849.....	944,585	594,920	204,049
1850.....	1,277,101	657,253	224,126
1853.....	1,651,597	1,064,964	323,934
1854.....	965,266	691,252	

The exports include also goods reexported; the value of the produce of the colony exported in 1853 was £732,245. The principal articles of

export are: wool, wine, hides and skins, aloes, whalebone, ivory, ostrich feathers, beeswax, and dried fruits. The exports of wool to England were 21,607 bales from Jan. 1 to July 1, 1857, and 23,380 bales during the same period in 1858. The total exports in 1858 were 7,864,608 lbs. The total value of exports from the British possessions in Africa to the U. S. during the year ending June 30, 1856, was \$483,594; and during the same period ending June 30, 1857, \$698,275. The imports from the U. S. amounted in the respective periods to \$418,251 and to \$687,745. The revenue of the colony has risen from £180,808 in 1832, to £308,472 in 1853, while the expenditures in the same years were only £126,889 and £268,111 respectively.

CAPE COMORIN, the most southern extremity of Hindostan, in the native state of Travancore, lat. 8° 5' N., long. 77° 37' E., forming a circular, low, sandy point, which is not discernible above the distance of 12 to 16 m. from the deck of a large ship. Eighteen m. north from the cape is a bold summit called Comorin peak, the southern termination of the western Ghauts, which has, from a distance, been often taken for the cape itself. Within a short distance of the cape lies a rocky islet, high above water; and about 8 m. from this islet are a fort and a village, a few fishermen's houses, a church, and some ancient temples, being the remains of the once famous town of Cape Comorin.

CAPE DIAMOND is the extremity of an abrupt promontory of Lower Canada, at the junction of the St. Charles and St. Lawrence rivers. On the promontory stands the citadel of Quebec, and on the W. and nearly on a level with the ramparts lie the plains of Abraham. Here was gained, in 1755, the memorable victory by the English, under Wolfe, over the French, under Montcalm.

CAPE DUCATO, the S. extremity of Santa Maura, one of the Ionian islands. It is identical with the ancient promontory of Leucadia, commonly called the Lover's Leap. The poetess Sappho is said to have thrown herself from the top of this promontory.

CAPE ELIZABETH, a headland projecting into Casco bay, between Portland harbor in Maine and the Atlantic ocean. The coast is rocky, made up of ledges of talcose slate, traversed by dikes of trap. There are 2 light-houses on the outer point, which stand 800 yards apart, the lights 140 feet above the sea.

CAPE ESPIQUEL (probably the ancient *Barbarium Promontorium*) is on the W. coast of Portugal, 121 m. S. W. of Lisbon. It rises abruptly from the sea, and is crowned by a small chapel and a light-house. It is of a whitish color on the N. and reddish on the S. side.

CAPE FAREWELL, the S. extremity of Greenland, s at the eastern entrance to Davis's straits. A strong current sets around this cape, and continues N. along the E. coast of the strait.

CAPE FARO (anc. *Pelorus*), the N. E. extremity of Sicily. It is at the narrowest part

of the strait of Messina, opposite the rock of Scylla, on the coast of Calabria. The hill above the cape is fortified.

CAPE FEAR, the S. point of Smith's island, near the mouth of Cape Fear river, N. C. About 1 mile from the shore stands Bald Head light-house.

CAPE FEAR RIVER is formed by the union of Haw and Deep rivers at Haywood, Chatham co., N. C. It flows S. E. and enters the Atlantic by 2 channels, between which lies Smith's island. The water is from 10 to 14 feet deep over the bar at the main entrance. This is the largest and most important river which lies wholly within the state, and the only one in N. C. which flows directly into the sea. It is navigable by steamboats to Fayetteville, 120 m. from its mouth, and by means of dams and locks a communication has been opened with the coalmines of Chatham co. At Averysborough, the river falls over the ledge which separates the hilly from the low region of the state. After this, it flows through a flat, sandy district, partially covered with extensive forests of pitch pine. Its length, including one of the head branches, is about 800 m.

CAPE FRIO (Port. *Cabo Frio*, cool cape), a promontory on the coast of Brazil, with a light-house. It forms the terminus of a range of mountains running parallel to the coast, and consists of a huge oval mass of granite.

CAPE FROWARD, the southern extremity of S. America; lat. 53° 53' 42" S., long. 71° 18' 30" W. It is a bold promontory of dark slaty rock.

CAPE GASPE, a headland of Canada, and the N. boundary of the bay of Gaspé, in the gulf of St. Lawrence. The bay, which is 18 m. long and 6 m. wide, forms a secure harbor. The cod and whale fisheries are extensively carried on off its shores.

CAPE GIRARDEAU, a county of Missouri; pop. in 1856, 12,849, of whom 1,800 were slaves; area, 875 sq. m. It is separated from Illinois on the E. by the Mississippi river, and is drained by the head streams of the Whitewater, and by Apple creek. Abundance of good timber is found, and the cypress especially grows in nearly all parts of the country. The surface is level, and the fertile soil is carefully and extensively cultivated. The productions in 1850 were 510,780 bushels of Indian corn, 52,640 of wheat, and 65,677 of oats. There were 89 corn and flour, and 9 saw mills, 2 newspaper offices, and 10 churches. The first settlements were made by French and German emigrants, in 1794. Capital, Jackson.—CAPE GIRARDEAU, a post village of the above county, has a good landing on the Mississippi river, and is the seat of St. Vincent's college.

CAPE GRISNEZ (anc. *Itium Promontorium*) is a headland of France (Pas-de-Calais), and the nearest point of the French coast to Great Britain. It has a revolving light 195 feet high.

CAPE GWADEL, or Ras Noo, a peninsula of Beloochistan, on the Indian ocean. It is

about 6 m. wide, and across its isthmus extends a ruined wall, near which stand the remains of a town, and a village of huts. On each side of the cape is a harbor; that on the W. side affords good anchorage.

**CAPE HATTERAS**, the easternmost point of N. C., a sandy insular spit, or narrow beach, separated from the mainland by the broad bay, called Pamlico sound. S. of the capes of the Delaware, no land stretches so far out into the Atlantic as Cape Hatteras. The gulf stream, in its E. and W. vibrations, often flows within 20 m. of the cape, crowding coasting vessels bound S., and consequently seeking to avoid the N. E. current, near to the shore. The difference of temperature between the hot airs of the gulf and the breezes along shore and from the land engender frequent commotions in the atmosphere at this place; and no point on the coast is more noted for its frequent and dangerous storms. A light-house is kept  $1\frac{1}{2}$  m. N. of the outermost point.

**CAPE HAYTIEN**, or **HAITIEN**, formerly Cape François and Cape Henry, a seaport town on the N. coast of the island of Hayti. Before the Haytien revolution broke out it was a handsome city, and some traces of its former elegance still remain. It has the safest harbor of Hayti, tolerably defended, and a fair trade with the United States, Great Britain, France, and Germany. In 1789 it had 18,500 inhabitants; before the earthquake of 1842 it had still 9,000, but in 1851 the population had diminished to about 6,000. In 1854, the entrances and clearances consisted of 190 foreign vessels, tonnage 80,970, and of 14 coasting vessels, 2,267.

**CAPE HENRY**, on the coast of Va., at the southern entrance of Chesapeake bay, has a fixed light 120 feet above the level of the sea.

**CAPE HORN**, also written **CAPE HOORN**, is a headland of an island of the Fuegian archipelago. It is a steep, black rock, with bare and lofty sides and pointed summits. It was formerly considered a very dangerous place to pass, but the difficulties of "doubling the cape" are now far less formidable. It was first discovered by the English navigator, Sir Francis Drake, in 1578, unless he was anticipated, as is claimed, by Garcia Jofre de Loaya, a Spanish commodore, in 1525, although it was first doubled by the Dutch navigators, Lemaire and Schouten, in 1646, the latter of whom gave it the name of his native city (Hoorn).

**CAPE ISLAND**, or **CAPE ISLAND CITY**, on Cape Island, Cape May co., N. J., is one of the most fashionable watering places in the U. S. During the summer months it has daily steamboat communication with Philadelphia, and the majority of the visitors who throng its hotels are from that city. Permanent pop. 600.

**CAPE LA HAGUE** (improperly written La Hogue), a headland of Normandy, France, is opposite the island of Alderney, and forms the N. W. extremity of the peninsula of Cotentin, in the English channel. It is often confounded with Cape La Hogue, on the opposite

side of Cotentin. Near this latter promontory, the united English and Dutch fleets defeated the French, May 19-23, 1692.

**CAPE LINGUETTA**, a headland of European Turkey, 2,290 feet in height. It forms the termination of the Ohimara, or Acroceraunian mountains, and bounds the E. entrance into the Adriatic.

**CAPE LOOKOUT**, on the E. coast of N. C., has a light 100 feet above the sea.

**CAPE LOPATHA** is at the S. extremity of Kamtchatka. At the northern part of the headland is a mountain, bearing the same name, whence the land gradually slopes and narrows until it terminates in a low and barren tongue.

**CAPE LOPEZ**, the S. extremity of the bight of Biafra, on the W. coast of Africa. It forms a large bay, 14 m. long, into which empty several shallow rivers and creeks.

**CAPE MAY**, a county at the S. extremity of N. J.; area 250 sq. m.; pop. in 1855, 6,935. Its E. boundary is formed by the Atlantic; Delaware bay washes its W. shore, and Tuckahoe creek makes a part of its N. border. The surface is level and the soil entirely alluvial. The productions in 1850 were 84,915 bushels of Indian corn, 16,384 of wheat, and 11,027 of oats. There were 8 grist and 12 saw mills, 19 churches, and 1,860 pupils attending public schools. On the Atlantic coast is a beach, covered for the width of from  $1\frac{1}{2}$  to 2 m. with grass. Through the numerous inlets which divide this beach the sea penetrates into the marshes, about 4 m. in width, and forms lagoons or salt water lakes. In the N. part of the county is a similar marsh. Near Dennisville is a deposit of cedar timber in the soil to an indefinite depth. From the growth of vegetation above it, it is believed to be at least 2,000 years old, yet it is perfectly sound, and a number of persons are engaged in digging it up and converting it into posts, shingles, &c. This county was organized in 1710, and named in honor of Cornelius Jacobus May, a navigator in the service of the Dutch West India company, who visited Delaware bay in 1623. Capital, Cape May Court-house.—**CAPE MAY**, a headland at the S. extremity of N. J., at the entrance into Delaware bay. It has a light which revolves once in 8 minutes, at an elevation of 90 feet above the sea. See **CAPE ISLAND**.

**CAPE MOUNT**, a river of W. Africa, emptying into the Atlantic. The district of Cape Mount, with its rivers, lakes, and islands, was deeded to an English company by the king of the territory, Feb. 23, 1841.

**CAPE NAU** (anc. *Lacinium Promontorium*), a headland of S. Italy, at the E. extremity of Calabria Ultra, was once the site of a temple dedicated to Juno Lacinia. Hannibal is said to have embarked here on leaving Italy, 203 B. C.

**CAPE NEDDOCK**, a promontory of Maine, 85 m. S. W. of Portland, with a light-house on Goat island near it, containing a fixed light 33 feet above the sea.

**CAPE NOONLAGMO**, or **NOUHLAGMO**, at

the N. E. extremity of Lawrence bay, on the coast of Asia, not far from the point where it approaches nearest to the American continent.

CAPE NORTH, a celebrated headland at the N. extremity of the island of Magerøe, Norway, is the northernmost point of Europe. It consists of a long chain of precipitous rocks jutting out into the sea. They are about 1,300 feet high, and are crowned partly by a kind of table-land and partly by pyramidal peaks.

CAPE NORTH, or Oroo, Orou, a peninsula at the N. extremity of New Zealand, about 2 m. long, and terminating in a bluff head flat at the top.

CAPE OF GOOD HOPE, or CAPE PEAK, a bold promontory rising nearly 1,000 feet above the sea, at the S. point of a narrow peninsula 82 m. long, near the S. W. extremity of the continent of Africa, having the Atlantic ocean on the W. and False bay on the E., 81 m. S. of Cape Town. Lat.  $34^{\circ} 22' S.$ , long.  $18^{\circ} 29' E.$

CAPE PILLAR, a high mass of rocks, terminating in 2 tower-shaped cliffs, at the S. W. entrance from the Pacific ocean into the straits of Magellan, and on the N. W. coast of Terra del Fuego.

CAPE PRINCE OF WALES, a promontory on Behring's sea, the most N. W. point of North America. It terminates in a peaked mountain, presenting a bold face to the sea, and is a dangerous point on account of a shoal which stretches to the N. E.

CAPE RIVER, or VAUNKA, called also, from a small town near its source, Río de Segovia, is a river of Central America, in the state of Nicaragua and the Mosquito territory. It flows through a fertile country, and after a course of 250 or 300 m., enters the Caribbean sea at Cape Gracias a Dios. It is navigable for a considerable distance from the sea, but the upper part of its course is obstructed by cataracts and shallows.

CAPE ROMAIN, a low and barren point of land, with a light-house, 87 m. N. E. of Charleston, S. C.

CAPE SABLE, the southernmost point of the mainland of Florida, and the site of Fort Poinsett.

CAPE ST. AUGUSTINE, the easternmost point of South America, on the coast of Brazil. It was seen by Pinçon in 1500, and was the first land discovered in South America.

CAPE ST. VINCENT (anc. *Promontorium Sacrum*), a headland at the S. W. extremity of Portugal. Off this cape, Feb. 14, 1797, an English naval force, consisting of 15 ships of the line, under Admiral Jarvis, defeated a superior Spanish fleet.

CAPE SAN ANTONIO. I. A high, barren, and precipitous headland, on the coast of Valencia, Spain. On its summit are a convent, a watch-tower, and several windmills. II. A lofty and nearly perpendicular promontory, at the mouth of the Río de la Plata, in the territory of Buenos Ayres.

CAPE SAN BLAS, a low point of land, about 2 m. long, on the S. coast of Florida. It has a revolving light 65 feet high.

CAPE TAIMOOR, TAIMOUR, TAIMUR, or TAYMOUR, a headland of Siberia, extending into the Arctic ocean. Next to Severo Vostotchnoi, it is the northernmost promontory of Asia.

CAPE TINDARO, a headland of Sicily, extending into the gulf of Patti. The remains of the ancient Tyndaris are in its neighborhood.

CAPE TRAFALGAR (anc. *Promontorium Junonis*), a headland on the coast of Cadiz, Spain. It is memorable for the naval battle fought near it, Oct. 21, 1805, between the English, under Nelson, and the combined fleets of France and Spain. The English gained a complete victory, though with the loss of their commander.

CAPE TOWN, the capital of the British territory in S. Africa, lat.  $33^{\circ} 55' S.$ , long.  $18^{\circ} 21' E.$ , situated at the bottom of Table bay, and at the foot of Table mountain, about 82 m. N. of the Cape of Good Hope. The town is well built and well laid out. There is a fortress near the town of considerable strength. Table bay is capacious, but the anchorage is rendered uncertain by the heavy swell of the Atlantic, which rolls its full volume against the coast. Cape Town is a station for astronomical observations, and Sir John Herschel passed 2 years at this port for the purpose of studying the heavens of the southern hemisphere. There is a castle and several batteries for the defence of the town and harbor. The chief public buildings are the government house, the colonial office, the barracks, the exchange, the post-office, the public library, 8 Anglican and 4 English dissenting churches, a Dutch Reformed church capable of holding 2,000 persons, and a handsome Roman Catholic church. The streets are laid out at right angles, and some of them are embellished with trees. Most of the houses are built of brick, faced with stucco; the interior is commodious, and some of them, in the older parts of the town, are decorated with architectural devices, and have in front raised platforms called stoeps. There is a capacious public walk, on one side of which are the gardens of the government house, and on the other the botanical garden. For imports and exports of Cape Town see CAPE COLONY. Pop. about 25,000.

CAPE VERD, the most westerly cape of the W. coast of Africa, between the rivers Senegal and Gambia; lat.  $14^{\circ} 48' N.$ , long.  $17^{\circ} 34' W.$  It was discovered in 1445 by the Portuguese navigator, Diniz Fernandez.

CAPE VERD ISLANDS, a Portuguese colony situated in the Atlantic ocean, 820 m. W. of Cape Verd, between lat.  $14^{\circ} 45'$  and  $17^{\circ} 13' N.$ , and long.  $22^{\circ} 45'$  and  $25^{\circ} 25' W.$ ; area, about 1,700 sq. m.; pop. in 1854, 86,488. The islands are of volcanic origin, and a volcano still exists on the island of Fogo. The shores are low, but in the interior there are high moun-

tains. The archipelago consists of 10 islands and 4 islets. The 10 islands are, Sal, Boavista, Mayo, Santiago, Fogo, Brava, Grande, Rombo, São Nicolao, and Santa Luzia; the 4 islets are, Branco, Razo, São Vicente, and Santo Antonio. The soil is dry but fertile. The heat of the sun is great, but the climate is tempered by the sea breezes. The rainy season lasts from the middle of August to November, and is unhealthy for Europeans. There is a great want of water and trees. Sometimes no rain falls for several seasons, and then the distress of the inhabitants is extreme. In 1832, after a 3 years' drought, 80,000 people perished. All the fruits of the S. of Europe and the W. of Africa flourish here, particularly oranges, lemons, melons, and bananas; so do rice, maize, wine, sugar, orchil, cotton, and French beans. Coffee was introduced in 1790. Indigo grows wild. Goats and fowls are very numerous; goat-skins are a principal article of export. Asses are reared and exported to the West Indies. The most remarkable of the wild animals are monkeys and bism cats; venomous reptiles are unknown; whales are found in the neighboring seas, and turtles frequent the coasts. Salt, which is exported to North America, is manufactured on these islands. The total value of exports to the United States for the year ending June 30, 1856, was \$36,910; and of imports from the United States, \$53,709. In the same period, ending June 30, 1857, the value of the exports to the United States was \$25,905, and of the imports \$64,508, the latter amount comprising \$63,108 of the growth, produce, and manufacture of the United States, and \$1,395 of the growth, produce, and manufacture of foreign countries exported from the United States.—The natives are docile, indolent, and very religious. The Roman Catholic is the only form of worship. There are 12 schools upon the islands. Mulattoes, a cross between Portuguese and negroes, form the next most numerous race; the whites constitute about  $\frac{1}{4}$  part of the population, the slaves  $\frac{1}{2}$ . The language is corrupted Portuguese, which the Portuguese call *lingua creoula*. As the sea between the continent and the islands is beset with haze and fogs during the greatest part of the year, ships sailing southward generally steer outside of the Cape Verd islands. The inhabitants have some commerce with Africa. The most considerable island of the group is Santiago, which is about 50 m. long and 23 broad in its widest part. It has a population of about 12,500 inhabitants. The governor resides at Porto Praya, a fortified seaport town on this island, with 1,200 inhabitants. The volcano of Fogo rises to the height of 9,157 feet. The islands were discovered in 1449 by the Portuguese, in whose uninterrupted possession they have ever since remained. On Jan. 1, 1857, there was a military force in the island of 3,028 men. The receipts of 1857-'58 are estimated at \$100,000, and the expenditures at \$140,000.

CAPE VINCENT, a port of entry of Jefferson co., N. Y.; pop. 3,044. It is situated on the St. Lawrence, at the terminus of the Rome and Watertown railroad, and has a steamboat landing and a ship yard.

CAPE WRATH, a promontory at the S. W. extremity of Scotland. It consists of a pyramid of gneiss, 800 feet high, and surmounted by a light-house. The light is 400 feet above the sea.

CAPECE-LATRO, GRUSKEFF, an Italian prelate and statesman, born in Naples, Sept. 23, 1744, died Nov. 2, 1836. He belonged to one of the oldest Neapolitan families, and when very young was appointed to the archbishopric of Tarento, which gave him the rank and privileges of primate of the kingdom of Naples. His ecclesiastical advancement did not withdraw him from philosophical studies, and while devoted to his duties as a priest of the Roman Catholic church, he at the same time opposed many of the claims of the papal see. One of his early writings upon the tribute paid by the kingdom of Naples to the court of Rome excited considerable attention. He caused a greater commotion by his work against the celibacy of priests, an institution which he maintained to have been the principal occasion of the Protestant reformation, and to be still the main source of the antipathy to the Catholic church, felt by a great number of its opponents. When the revolutionary spirit began to manifest itself in Italy, Capece-Latro directed the attention of Queen Caroline to the abuses in the government, but he was not listened to. When the revolution at length broke out, in accordance with the wishes of the people he accepted a public office. Upon the restoration of the Bourbons, Capece-Latro was thrown into prison, and marked out as one of the first victims of sacrifice. But all parties deciding and uniting to save him, the government was forced to release him, and offered him his liberty as an act of royal clemency. The prisoner would not take freedom on such terms. Refusing favor, he demanded justice, and the king found himself obliged to make excuses to him. During the government of Joseph Napoleon at Naples in 1808, Capece-Latro was minister of the interior, and continued in the position with distinguished success under Joachim Murat. After the fall of this king, the prelate lost his archbishopric; he withdrew from public affairs, and made his house a place of reunion for persons of distinguished rank or wit. His last work was in praise of Frederic II. of Prussia.

CAPEFIGUE, BAPTISTE HONORÉ RAYMOND, a French historian, born in Marseilles in 1801. He was the school-mate of Thiers and Mignet; in 1821, the 3 repaired to Paris to study law, but soon became engaged in historical studies and politics. Capefigue joined the royalists, and became one of the writers of the *Quotidienn* newspaper. In 1828 he attracted some attention by his *Récit des opérations de l'armée Française en Espagne*. The same year he published

his first historical book: *Essai sur les incursions des Normands dans les Gaules*. From that time he pursued, with unfailing activity, his twofold task of historian and journalist. In 1827 he gained considerable reputation by his *Histoire de Philippe Auguste*, which is still considered his most valuable performance. He has since been an important contributor to several newspapers, most of them in the royalist interest. He has also published numerous historical works. He has thus treated the entire annals of France from the 10th century to our time, the whole forming a little less than 100 volumes, one-third of them devoted to the last 75 years. Although they contain valuable information and curious documents, they cannot be compared with the histories of Thiers, Mignet, Michelet, Augustin Thierry, and Guizot.

CAPEL, ARTHUR, lord, an English royalist, elected to the long parliament in 1640, died March 9, 1649. He voted for the death of Strafford, and then returning to the cause of Charles I., raised and maintained a troop in his interest, and fought against the parliamentarians at Bristol, Exeter, Taunton, and Colchester. Captured in the last city, he was condemned for treason, and met his death with firmness. He wrote "Daily Observations or Meditations, Divine, Moral, and Political."—His son, also named ARTHUR, born in 1635, created earl of Essex by Charles II. in 1661, was lord lieutenant of Ireland, 1672-'7. Afterward involving himself among the enemies of the court, he was arraigned for participation in the Rye-House plot, and was found with his throat cut in the tower, July 13, 1683.

CAPELL, EDWARD, a Shakespearian commentator and critic, born at Troston, in Suffolk, England, in 1713, died in London, Feb. 24, 1781. Under the patronage of the duke of Grafton, he became deputy inspector of plays, an office which left him leisure for his Shakespearian studies. He published his edition of the works of Shakespeare, 10 vols. 8vo, 1767, "Notes and Various Readings of Shakespeare," 4to, 1775, and the "School of Shakespeare," 8 vols. 4to, 1783, was issued 2 years after the author's decease. His labors continued for more than 40 years.

CAPELLA, MARCIANUS MINNEUS FELIX, a writer who flourished in the 5th century, but of whose life little is known. He was probably a native of Carthage. His principal work is a curious allegorical medley in prose and verse, composed in imitation of Varro's *Satyræ Menippeæ* and Petronius' *Satyricon*, and entitled *Satyræ de Nuptiis Philologiae et Mercurii*. It consists of 9 books, of which the first 2 describe the marriage of Philology and Mercury, and the remaining 7 treat of the liberal sciences. Copernicus is supposed to have derived a hint of his system from an assertion in one of these books that Mercury and Venus revolve about the sun, and Boethius is said to have taken from Capella the model of his *Consolationes Philosophicæ*. The best editions of Capella are

those of Hugo Grotius, 8vo, Leyden, 1599, and Kopp, 4to, Frankfort, 1836.

CAPELLO, BIANCA, grand duchess of Tuscany, born in Venice, 1542, died at Poggio, Oct. 19, 1587. In 1563 she eloped with a banker's clerk, of the name of Pietro Buonaventuri, who, barely escaping from the vengeance of her father, put himself under the protection of Francesco de' Medici at Florence. Bianca's beauty and accomplishments fascinated Francesco, and although but recently married to Joanna, arch-duchess of Austria, he caused the fair Venetian to reside in his palace, attaching her husband to his household as steward. In 1570, when the arrogance of Buonaventuri became unbearable, he was put to death by order of Francesco, who, on the decease of his father Cosmo I., ascended the throne of Tuscany. Bianca presented him with a son Aug. 29, 1576, which however was not her own, but was procured from a poor woman, and in order to preclude the detection of the imposture, she caused the assassination of most of those who had assisted her in its perpetration. In 1577 Joanna of Austria bore a son to the grand duke, and as she soon afterward died, while she was pregnant with still another child, Francesco was, for a moment, overcome with contrition and remorse, and seemed disposed to discard Bianca; but the cunning woman knew how to beguile her lover, and in two months he married her. The marriage was approved of by Philip II. of Spain, and solemnly ratified by the republic of Venice, the official marriage ceremony taking place in Oct. 1579. In 1582 Francesco's son by Joanna of Austria died, and as there was no prospect of seeing her supposed son adopted as heir to the throne, Bianca endeavored to reconcile herself with Francesco's brother, the cardinal Fernando de' Medici, who, in all probability, would succeed him as grand duke. In Oct. 1587, the 2 brothers and Bianca met at Poggio, and a few days afterward the grand duke and Bianca were taken suddenly ill with the same disease, of which they both died. Bianca had ever been an object of hatred to her brother-in-law, and it was believed that Fernando had poisoned her with her husband; but there is no judicial or historical evidence to support the supposition.

CAPER, the flower bud of a low shrub (*caparis spinosa*), which grows on walls and ruins, or on rocks and accumulations of rubbish, in the south of Europe and the Levant. It is very common in Italy and in the southern parts of France. It grows wild upon the walls of Rome, Florence, and Sienna, and is cultivated on a large scale between Marseilles and Toulon, and also in many parts of Italy. It begins to flower in the early part of summer, and flowers continuously until the commencement of winter. The buds are picked every morning before the petals are expanded, and are put into vinegar as they are gathered. They are distributed according to their size into different vessels and prepared for the market; the youngest and the smallest, being

most tender, are the first in quality; and hence the different sizes are placed in separate vinegar jars, denoting difference of quality and value. The stems of the caper bush are trailing and 2 or 3 feet long. The leaves are alternate, ovate, veined, and of a bright green color. The flowers are white, large, and beautiful, with a tinge of red. They are divided into 4 petals, and from the centre of each flower springs a long tassel of deep lilac stamens. The brilliant blossoms give a very gay appearance to the plant.

CAPERNAUM, a city of Palestine, often mentioned in the New Testament, and memorable as the scene of many of the works of Jesus. The neglect of the inhabitants to profit by the instructions that were given them led to the well-known declaration of Matt. xi. 23. This ancient city seems to have been on the W. coast of the sea of Genesareth; but travellers have not been unanimous in pointing out its locality. A long series of traditions identified it with a ruined village, known at present as Khan Minyeh, until the 17th century; since then it has generally been fixed at Tell Hâm, a spot further N. on the seacoast. Dr. Robinson inclines to restore the ancient tradition, for reasons which he gives at length in his "Biblical Researches in Palestine and the Adjacent Regions," vol. iii., pp. 348-358.

CAPERS, WILLIAM, D.D., an American clergyman, late one of the bishops of the Methodist Episcopal church south, born in St. Thomas' parish, S. C., Jan. 26, 1790, died at Anderson, S. C., Jan. 29, 1855. He received the degree of A.M. from South Carolina college, and subsequently the honorary degree of D.D. In 1809 he was received into the S. C. conference, filling some of the most important stations in its bounds. In 1821 he was appointed missionary to the Indians in western Georgia, and travelled extensively throughout the state pleading the cause of missions. The year following he established a mission among the Creek Indians on Flint river. In 1825 he was stationed in Charleston, where he remained as preacher in charge and presiding elder for 6 years. For a part of this time he edited the "Wesleyan Journal," which was subsequently merged in the "Zion's Herald," and now bears the name of the "Christian Advocate and Journal" in New York. In 1835 he was elected professor of the evidences of Christianity in the university of S. C., a post which he afterward resigned to take charge of the "Southern Christian Advocate." After remaining in the editorship of this paper 5 years, the general conference appointed him to the office of general missionary secretary for the south, the north being assigned to Dr. Bangs, and the west to Dr. now Bishop Ames. This appointment he held until the ensuing general conference, during which time he travelled extensively over the south, presenting the claims of missions upon the attention of the church. At the first general conference of the M. E. church south he was elected and consecrated bishop (1846), which office he filled with

zeal and fidelity until his death. The church of which he was a member delighted to do him honor, and hence during his life he occupied the most important and responsible positions in her gift. We must not omit to mention that the general conference of 1828 chose him as its representative to the Wesleyan connection in England. He exercised a commanding influence in all the ecclesiastical assemblies of his own denomination.

CAPET, the nickname of Hugues, or Hugh, the 1st king of the 8d French dynasty. Considerable difference exists among the learned concerning the etymology of this appellation. Pasquier derives it from a half Latin word meaning head or chief; Du Cange, from *chapeta*, a provincial word of Auvergne, meaning a jester, as Hugh, during his early youth, was wont, by way of jesting, to throw down the caps of his companions; others from *capita*, a large head; others from *chapatus*, a man wearing a cope, a sacerdotal cloak. Indeed, the first Capetians were abbots of St. Martin at Tours, and King Robert, the son of Hugh, used to sing at vespers arrayed in the sacerdotal cloak; the old banner of the same king was simply a St. Martin's cloak.

CAPETIANS, the 8d race of French kings, beginning with Hugh Capet. Their origin is usually traced back to Robert the Strong, a warrior of Saxon descent, who held in fief from Charles the Bald the county of Anjou and afterward the duchy of France. He gained great popularity by his struggles against the Norman pirates who invaded France during the 9th century. Three of his descendants, Eudes, Robert, and Raoul, assumed the title of king in competition with the Carolingian princes; but the crown was not firmly established in this family until the election of Hugh Capet. This appears to have been a kind of national protest on the part of the Gallo-French population against the descendants of Charlemagne, who then depended on German princes. The Capetians, several of whom were distinguished as able politicians or great warriors, strengthened their position by close alliance with the clergy, and the assistance they received from the *communes* or municipal cities. They were 14 in number, and reigned from 987 to 1328, as follows: Hugh Capet, Robert the Pious, Henry I., Philip I., Louis VI. the Fat, Louis VII., Philip Augustus, Louis VIII., Louis IX. or St. Louis, Philip III. the Bold, Philip IV. the Fair, Louis X., Philip V., and Charles IV. From this main stock issued several collateral branches, the most important of which are the following: Robert, the grandson of Hugh Capet and brother of Henry I., in 1083 founded the first ducal house of Burgundy, which became extinct in 1361; Pierre, the 8th son of Louis VI., married Isabelle de Courtenay, and had 8 descendants who reigned at Constantinople during the 18th century; Charles, count of Anjou, the 8th brother of St. Louis, was the head of the first house of Anjou, which held

the kingdom of Naples from 1364 to 1382. The 6th son of the holy king, Robert, count of Clermont, was the head of the house of Bourbon, which succeeded to the French throne in 1589; while his grandson, Charles, the brother of Philip the Fair, founded the house of Valois, which came into possession of the crown on the extinction of the direct Capetian line.

CAPIAS (Lat. *capio*, to take) is the name of several species of judicial writs in actions at common law, which command the sheriff or other officer to take a party or property named. The *capias ad respondendum*, which orders the officer "to take the body of the defendant and to keep the same to answer" (*ad respondendum*), is the writ ordinarily referred to by the term *capias* when used alone.

CAPILLARY ACTION (Lat. *capillus*, a hair), a manifestation of the force of adhesion shown by the movement of a fluid upon a solid surface placed partly within the fluid. It is called capillary because it is most striking on the inside of very small tubes—capillary (hair-like) tubes. If the solid can be wet by the fluid, the fluid will rise in the tube, or on any surface, as water on glass or wood. If the solid cannot be wet by the fluid, the fluid will be depressed in the tube, as quicksilver is depressed in a glass tube. Capillary action has been investigated with great care, both by experiment and calculation, but its interest is chiefly theoretical, its practical uses and laws being obvious. See Laplace's *Mécanique céleste*, vol. iii.

CAPILLARY VESSELS, minute vessels intermediate between the arteries and veins, the terminal branches of the former and the radicles of the latter; they are found in almost every tissue of the animal body, communicating freely with each other, and forming intricate networks or plexuses, whose interstices are close in proportion to the importance or functional activity of the organs. Their walls are composed of a delicate membrane, without muscular fibres, often presenting on its external surface oblong nucleated cells. The diameter varies in different animals according to the size of the blood globules; in man it is from the  $\frac{1}{1000}$  to the  $\frac{1}{2000}$  of an inch. The dimensions are not constant, but vary according to disturbing causes in the general or local circulation. The existence of capillaries too small to admit a blood globule, and adapted only for the reception of the serous portion of the blood, is not admitted by the best physiologists of the present day, and therefore the idea that nutrition can only be carried on by means of capillaries must be abandoned; some tissues, as cartilage, have no vessels, and yet they are nourished by the blood, whose nutrient materials are absorbed by the tissues nearest the vessels and from them passed on to the cells of the non-vascular structures. Such is the relation between the plan and minuteness of the capillary network and the character and function of the tissue supplied, that it is possible to judge with tolerable accuracy of the part from which a

specimen has been taken. The network is the closest where some change is to be effected in the blood itself, as in the lungs and glands, and the most open where the blood is received merely for purposes of nutrition of the tissue; in the nervous centres and the muscles the network is fine, on account of the required activity of their molecular changes. In warm-blooded animals the rate of the capillary circulation is about  $\frac{1}{100}$  of an inch in a second, or  $1\frac{1}{2}$  inch in a minute. Comparing this with the rate of movement in the larger arteries (about  $11\frac{1}{2}$  inches in a second), Volkmann has calculated that the aggregate area of the capillaries must be nearly 400 times that of the arteries which supply them. The movement of the blood through the capillaries is principally dependent on the force of the heart and the contraction of the arteries; but the circulation of the lower classes of animals, and of plants, proves that there is some power independent of that of a central organ sufficient to move the blood in these vessels—a power originating in the vessels and intimately connected with the activity of the processes of nutrition and secretion. The capillary circulation may continue after the cessation of the action of the heart, may cease in certain parts while the heart is actively contracting, and is constantly retarded and accelerated by causes of entirely local character. If the web of a frog's foot be examined under the microscope, the current is seen at one time slow, at another rapid, sometimes in one direction, sometimes in the opposite, and occasionally perfectly still, according to the strength or weakness of the neighboring currents, from entirely local causes; if the heart's action be impeded, these irregularities will be more marked. The emptiness of the arteries after most kinds of death, partly due to the tonic contraction of these vessels, is rendered complete by the longer continuance of the capillary circulation. It is well known that the kidneys, the skin, and its glands, continue their secretions for a time after death, which would be inexplicable without the activity of the capillary circulation in these parts. In the early embryonic stages of the higher animals a circulation is seen before the formation of a central heart, and the first movement is toward, and not from, the centre. In the case of the foetus without a heart, though in connection with a perfect twin, the circulation is kept up by the capillary power, which, though generally subordinate to the heart, is sufficient for the maintenance of the circulation without the aid of the central organ. In many cases of fatty degeneration of the heart there is scarcely a trace of muscular tissue, and yet the circulation may be carried on for a long time without any serious disturbance; in such cases a capillary power must be active. Wherever there is any local excitement in which the processes of nutrition and secretion are interested, there will be an increase in the local amount of blood and a more rapid circulation in the capillaries. The



cessation of the capillary power, and the consequent obstruction of the circulation, even though the heart's action be unimpaired, may cause gangrene of the solid tissues; the prolonged influence of severe cold destroys the life of a part by its action on the capillaries; if the admission of air into the lungs be prevented, the pulmonary capillary circulation is arrested as soon as the blood becomes loaded with carbonic acid, and asphyxia is the result, unless a fresh supply of oxygen be speedily obtained. Without admitting any contractile power in the capillaries, or any mechanical aid to the circulation, the motion of the blood through them is certainly affected by any change in the chemico-vital relations between this fluid and the tissues; the heart sends the blood to the capillaries, but its passage through them is rapid or slow according to the activity or depression of the processes to which it should be subservient. Prof. Draper, of New York, has established the following principle, which seems to explain the movement of the blood in the capillaries: "If 2 liquids communicate with one another in a capillary tube, or in a porous or parenchymatous structure, and have for that tube or structure different chemical affinities, movement will ensue; that liquid which has the most energetic affinity will move with the greatest velocity, and may even drive the other liquid before it." The arterial blood, rich in oxygen, with which it is eager to part, has a greater affinity for the tissues than has venous blood, loaded with carbon; therefore, on the above principle, the arterial blood of the systemic capillaries must drive before it the venous blood, and this in proportion to the perfect oxygenation of this fluid. In the lungs, on the contrary, the venous blood, rich in carbon, has the strongest affinity for the oxygen of the inspired air, and must drive before it in the pulmonary capillaries the arterial blood, already saturated with oxygen, and therefore having no affinity for the chemical elements of the air; and this in proportion to the perfection of the act of respiration. The chemico-vital actions of the systemic capillaries, though no more important to life, are much more complex than those of the capillaries of the lungs. In the latter it is a mere interchange between carbon and oxygen, while in the former every organ and tissue attracts to itself the materials necessary for its own nutrition, and causes a circulation in it in accordance with the above-mentioned physical principle. Though the capillary circulation is in a great measure independent of the direct agency of the nervous system, it is modified by the control exercised by the sympathetic nerves over the smaller arteries, and by the influence of the nervous system on the molecular changes in which the processes of nutrition and secretion consist. Though the blood will circulate after the division of the nerves of a part, any sudden and violent shock to the nervous centres will instantly arrest the capillary circulation. To use a homely illustration: if we com-

pare the arteries of the human body to the main channels through which water is brought to a city from a distance, the heart being the source, and the veins to the underground system of sewers, which convey away the impurities and excess of the supply, we may regard the capillaries as the small pipes which enter every house, on which depends the easy and regular performance of the essential labors of every-day life, without which there can be no comfort, cleanliness, health, or happiness.

OAPIS, a province of the Spanish Philippines, forming the N. portion of the island of Panay; area, 1,680 sq. m.; pop. 210,120. The soil is exceedingly fertile, and irrigated by a great number of small mountain streams. The product of rice is remarkably abundant, yielding in many places as much as 200-fold, while the land can be cropped twice a year. The inhabitants are of the Bisaya race, and noted for their docility of character, industry, and fidelity to the government. The town of Capi is a place of considerable native trade; pop. 11,520.

CAPITAL (Lat. *caput*, head), in architecture, the head of a column or pilaster; in political economy, accumulated and productive wealth, whether in the form of money, buildings, machinery, improvements on land, or merchandise; in geography, the chief town of a state or district.

CAPITAL PUNISHMENT (from *caput*, head, the source of life; hence *capitalis*, any thing affecting life, as *crimen capitalis*, capital crime; *pæna capitalis*, capital punishment), in modern law, the punishment of death. A capital offence by the Roman law imported only a loss of civil rights (*amissio civitatis*). In the primitive state of social organization, at least in the earliest condition of which we have any record, retaliation was the common method of punishing offences, and this was inflicted by the individual suffering the injury, or by his friends when the injury was loss of life. The right of individual revenge has not only existed in the savage state, but has been recognized, and to some extent tolerated, even after laws have been enacted for the restraint of crime; and in the laws of many nations, retaliation, that is, the infliction of the same injury upon the offender which he had committed, was allowed.—Moses prescribed, as the measure of punishment for corporal injuries, an eye for an eye, a tooth for a tooth, and life for life, Exod. xxi.; Levit. xxiv.; and it would seem, in the latter case, that any person belonging to the family of the person whose life had been taken could pursue the murderer and slay him. "The avenger of blood" was a person having such right of private vengeance, and not a public officer appointed for that purpose. The only means of escape from this mode of retribution was by fleeing to certain cities of refuge, and this was available only in cases of what we should call excusable homicide.—The offences designated by the laws

of different nations as punishable by death, are illustrative of the degree and peculiar form of civilization.—The Hebrew polity being theocratic, many offences were punished capitally as being violations of the national faith. Thus desecration of the sabbath, blasphemy, idolatry, witchcraft, cursing, offering children to Moloch, disobedience to parents, were punished by death. Murder, adultery, incest, kidnapping a free person and selling him for a slave, and some other offences, were also capital.—The Athenian code of laws established by Draco prescribed the punishment of death for a large number of offences, greatly differing in degrees of criminality, which the lawgiver extenuated by saying that the smallest of the crimes specified deserved death, and there was no greater penalty which he could inflict for more heinous offences. This severity was afterward very much modified, and the Athenian criminal code became very mild, subject, however, to an arbitrary power reserved to the assembly of the people over the lives of all the citizens, and also to a discretion, which in many instances was left to the areopagus, and even to the dicasts of the people, of determining the punishment as well as the guilt of the accused; as in the case of Socrates, who, after trial by the court of areopagus, and being convicted of the charge against him, was retried with reference to the punishment. It was generally in the power of an Athenian to escape from a trial, if he was unwilling to incur the risk, by going into voluntary exile. Arrest before trial was not the practice in judicial proceedings, either civil or criminal, in the Athenian courts. The crimes ordinarily punished by death, or for which death was prescribed by law, were sacrilege, impiety (any open disrespect for religious rites or popular faith), treason, murder, or the attempt to murder, and incendiarism. There may have been some other cases, but we have no distinct record of them. The charge against Alcibiades, which drove him into exile, was the mutilation of the busts of Hermes which had been placed in the streets of Athens. Socrates was accused of disbelief of the national religion. Although the judgment of the areopagus in the case of Socrates was unjust, yet the ordinary administration of justice by that court was impartial and lenient.—The Roman laws compiled by the decemvirs were severe. The *lex talionis*, or punishment like to the injury, was admitted in cases of maiming or other corporal violence; but exemption could be obtained by a pecuniary compensation. Montesquieu mentions the singular provision by which the penalty of death was denounced against the writers of libels and poets, as showing that the laws were framed for the support of a despotic government. The severity of the 12 tables (into which the laws had been digested by the decemvirs) was prevented from having full operation by the Valerian laws (which had been previously passed in the consulship of Valerius Poplicola), taking from the consuls the

power of inflicting the punishment of death, and giving an appeal from the consul to the people in all cases, and finally by the Porcian law, A. U. 454, forbidding any one to bind, scourge, or kill a Roman citizen. Criminal jurisdiction in capital cases was, therefore, vested in the assembly of the people. Trials were always had in those cases before the *comitia centuriata*. The same usage prevailed at Rome which existed at Athens, viz.: of allowing a criminal accused of a capital crime to go into voluntary exile, and thus avoid the judgment of the court; but, in such cases, his property could be confiscated for non-appearance.—The Germans, in their primitive state, allowed private retaliation for injuries, and long after they had become established as nations within the territory of the Roman empire, and had become subject to codes of laws, this was still considered a natural right, and judicial authority interposed no check except to impose terms of compromise, when the injured party was willing to accept pecuniary compensation. The Salic law prescribed the rate of composition for different crimes, which was called *wehrgeld*, prohibition money (from *wehren* or *bewahren*). It was, however, assumed that the injured party had a right to choose whether to take the composition, or to get satisfaction by his own hand. Similar provisions are found in the laws of the Burgundians, Visigoths, and Ripuarian Franks. The Anglo-Saxons, like the other German nations, had a scale of fines for every species of crime; that for murder was called *motgbots* or *manbota*. Retaliation was the common mode of redress, and private feuds prevailed to a great extent, which for a long period could not be controlled by law. Magistrates, however, were authorized to compel the injured party to accept the fine. If the wrong-doer (in case of murder) kept himself in his own house, it was permitted of his adversary to besiege him, and if he should surrender himself, he might be detained 30 days, but was then to be delivered up upon paying the prescribed compensation. This was enacted by the laws of Alfred. By the Mercian laws, the price of a ceorl's head was 200 shillings, that of a thane 1,200. Beside paying the relations of the deceased, a murderer was also obliged to make compensation to the master if the deceased was a slave, or to the lord if the deceased was a vassal under his protection. It was common for the poorer class to enrol themselves as the retainers of some superior, who was then bound to protect them. Associations were also formed among men of the same class for their mutual protection—the obligation assumed being to pursue the murderer of any one belonging to the association, and inflict punishment.—By the common law of England, no punishment can be adjudged, except what is prescribed by law. The penalty for all crimes must be fixed by statute, or otherwise courts can adjudge none. There was during a long period a serious interference with the regular administration of criminal justice, growing out

of the exemption claimed by the church in behalf of the clergy and their retainers. (See *BENEFIT OF CLERGY*.) It became usual, therefore, to incorporate in statutes subsequently passed against crimes, a prohibition of benefit of clergy. At the time Blackstone wrote there were 196 different offences which, by various statutes, had been declared to be felonies without benefit of clergy. A great amelioration has taken place in the English criminal law by various statutes recently passed, particularly 7 and 8 Geo. IV., but the offences are still numerous for which capital punishment is inflicted.—By the laws of the United States, the crimes punishable by death are, treason, murder, rape, arson, piracy, robbing the mail (if it be with jeopardy to the life of the person in charge thereof), rescue of a person convicted of a capital crime when going to execution, burning a vessel of war, and corruptly casting away or destroying a vessel belonging to private owners. In the state of New York 8 crimes only are punishable by death, viz.: treason, murder, and arson. Imprisonment in the state prison for life, or a term of years, according to the degree of the offence, has been substituted in all the other cases, which in England are punished by death. In the other states similar legislation has prevailed. Transportation has been resorted to in England as a commutation for capital punishment in a large number of cases.

**CAPITANATA**, a province of Naples, on the E. slope of the Apennines, bounded N. and E. by the Adriatic; area, 8,178 sq. m.; pop. in 1856, 384,878. This region on the N. is covered with mountain ranges, branching from the Apennines, the principal of which is Mt. Gargano, occupying an extent of more than 800 sq. m. The interior and a portion of the S. part of the province is a low sandy plain, used only for pastures. The hills are sterile or covered with forests, but between them are rich valleys. The chief source of industrial employment is found in the rearing of sheep and horses.

**CAPITEIN**, JACQUES ÉLISÉE JEAN, a converted and learned African, died at St. George d'Elmina, after 1742. Found on the coast of Guinea by a Dutch captain, he was carried to the Hague, where he was baptized, and educated at the expense of a merchant of that city. He was instructed in the ancient languages, and in 1738 studied theology at the university of Leyden. In 1742 he was appointed missionary to Guinea, but no account is given of his services in that capacity. He wrote several works in Latin and Dutch.

**CAPITO**, WOLFGANG FABRICIUS, originally named KÖRSTEIN, a religious reformer, contemporary with Erasmus and Calvin, born at Haguenau, in Alsace, in 1478, died of the plague at Strasbourg in Dec. 1541. He received his education at Basel; was made secretary to Albert of Brandenburg, archbishop of Mentz; in 1523, became a convert to the reformed theology, and devoted himself to its

propagation; removing to Strasbourg, he entered the ministry; acted as deputy at all the principal conferences of the reformers, at Zurich in 1523, at Marburg in 1529, and at the diet of Augsburg in 1530 he was one of those appointed to present the confession to the emperor. He was much respected by his contemporaries as a man of sound learning; his belief, however, has been made the subject of some argument, and he has been accused of a leaning toward Socinianism; this uncertainty with regard to his tenets created some distrust among both the Zwinglians and the Lutherans.

**CAPITOL**, **CAPITOLIUM**, **MONS CAPITOLINUS**, now **CAMPIDOGGIO**, a hill, a fortress, and a temple celebrated in the history of ancient Rome. The citadel was begun in the time of Tarquinius Priscus, 614 B. C., but was not finished until after the expulsion of the kings. The temple of Jupiter Capitolinus was erected at the same time. The hill was wholly consecrated to Jupiter, except a nook which was reserved for the god Terminus, who refused to leave the spot when the other gods did so out of deference to Jupiter. The temple was destroyed by fire, 88 B. C.; was rebuilt by Sylla, and dedicated by Q. Catulus, 69 B. C.; it was again burnt A. D. 69, by the soldiers of Vitellius, and rebuilt by Vespasian. In the reign of Titus it was burnt a 3d time, A. D. 80, but Domitian restored it with great magnificence. The temple contained 3 shrines, consecrated respectively to Jupiter, Juno, and Minerva. The form of the Capitol was nearly a square, being 200 feet long and 185 feet broad. In the piazza or portico the people were feasted on triumphal occasions. The victorious generals went up there in procession to offer thanks and sacrifice. The Sibylline books and the most important public documents were deposited there. Other temples were one by one raised on the Capitoline hill. Among these, the temples of Juno Moneta, with the mint attached, of Jupiter Feretrius, of Mars, of Venus, of Fortune, of Isis and Serapis, were the most considerable. A bibliotheca or library, the tabularium, athenæum, and other public buildings were also in the Capitol. At the S. end was the Tarpeian rock, down which state criminals were thrown headlong. The principal buildings of the Campidoglio, or modern Capitol, consist of 3 palaces, forming 3 sides of a square, the work of Michel Angelo.

**CAPITOLINE GAMES** (*ludi Capitolini*), annual games instituted on the suggestion of Camillus, 387 B. C., in honor of Jupiter Capitolinus, and in commemoration of the preservation of the Capitol from the Gauls. One of the amusements at these games was to offer the Sardinians for sale by auction. These Sardinians are by some supposed to have been Sardinians, and by others, Veians. The games fell into disuse, and were revived by Nero, who modelled them after the Olympic games, and endeavored to introduce a new method of computation of time, reckoned, like the Olympiads of Hellenic

chronology, from the quinquennial celebration of the *Judi Capitolini*.

**CAPITOLINUS, JULIUS**, a Roman historian, who lived toward the end of the 8d century, and wrote the lives of 9 emperors. He is one of the writers of the *Historia Augusta*, in the editions of whom his works are to be found.

**CAPITULATION**, in war, the act of surrendering to the enemy upon stipulated terms. The most celebrated capitulation of modern times is that of Ulm, which was signed Oct. 17, 1805, and according to which 28,800 Austrian troops concentrated in and around Ulm, under Gen. Mack, surrendered, with 60 pieces of artillery and 40 standards, to the French forces under Napoleon and Ney.—In German constitutional history, a contract which the German electoral princes entered into with the German emperor, before he was raised to the imperial dignity. The first of these capitulations was exacted from Charles V. at the commencement of the 16th century, by the German princes who feared that the king of Spain would not respect the limitations put upon him by the constitution of the German empire. They accordingly drew up a capitulation, reciting the privileges they demanded, to the observance of which Charles V. was compelled to swear. The last of these imperial capitulations was sworn to by the emperor Francis II., July 5, 1792.

**CAPITULARIES**, certain laws enacted under the Frankish kings, and so named from the circumstance of their being divided into *capitula*, or chapters. They were issued by Childebert, Clothaire, Carloman, and Pepin, but still more extensively by Charlemagne, whose object appears to have been to harmonize, explain, or amend the existing feudal codes, and effect to some degree a uniformity of law in his dominions. These enactments were both civil and ecclesiastical; according to Savigny, the latter were of force throughout the 8 kingdoms subject to the race of Charlemagne, but the former were valid only within the state in which they originated. The capitularies were promulgated in the public assemblies, composed in Charlemagne's day of the sovereign and chief clerical and lay dignitaries, though in earlier times all those capable of bearing arms seem to have taken part in them. The laws were inscribed among the royal archives in the Latin tongue, and published to the people in the vernacular. Their execution was intrusted to the bishops, the courts, and the officers called *missi regii*, who were sent under the French kings of the first and second race to administer justice in the provinces. The earliest enactment coming under the name of capitulary was made by Childebert A. D. 554, and the latest by Charles the Simple, who died in 929. The first collection of the capitularies was begun in 827 by Ansegisus, abbot of Fontenelle, and continued by Benedict the deacon, of Mentz. It was approved by various kings and councils, and had the force of law. Additions have since been made to this collection, and the first complete

edition was published by Vitus Amerpachius at Ingolstadt in 1545, under the title of *Præcipua Constitutiones Caroli Magni de Rebus ecclesiasticis et civilibus*. The best edition is that of Baluze, entitled: *Capitularia Regum Francorum*, &c., Paris, 1677, 2 tom. fol.; reprinted at Venice in 1771, and at Paris in 1780.

**CAPMANY Y MONTPALAU, ANTONIO DE**, a Spanish writer, born in Barcelona, Nov. 24, 1742, died in Cadiz, Nov. 14, 1813. He served in the wars with Portugal in 1762, left the army in 1770, and joined Olavide in his scheme for colonizing and cultivating the Sierra Morena. This enterprise terminated disastrously, and Capmany removed to Madrid, where he was chosen secretary of the royal historical academy of Spain in 1790, and filled several offices in the gift of the government. He travelled in Italy, Germany, France, and England. When the French entered Madrid in 1808, he fled to Seville, where he arrived destitute and in rags. He was chosen a member of the cortes of Cadiz, in which capacity he made himself conspicuous by his patriotism and active opposition to the new rulers. His works, which enjoy a high reputation in Spain, are numerous; among them are *Memorias historicas sobre la Marina, Comercio y Artes de la antigua Ciudad de Barcelona*, in 8 vols. 4to; *Questiones criticas sobre varios puntos de historia, economica, politica y militar*; *Teatro historico-critico de la Eloquencia Española*; and *Diccionario Frances-Español*.

**CAPO D'ISTRIA**, a city, pop. 6,500, and county, area 168 sq. m., pop. 43,600, in the margraviate of Istria, one of the crownlands or provinces of the Austrian empire. The city is situated upon a rocky island, 9 m. S. of Trieste, connected with the mainland by a solid stone bridge 2,800 feet long. It has crumbled walls and fortifications, a large number of old dilapidated buildings and narrow and crooked streets. The city is said to have been founded by the Colchians, under the name of *Ægida*; in the 6th century A. D., many wealthy families sought a refuge there from the Longobards and Avari. Having been conquered by the emperor Justinian I., it was named by him Justinopolis, in honor of his uncle, Justin I. Later it became an independent commonwealth; was annexed to Venice in 982; conquered by the Genoese in 1380; was independent again in 1478, until the whole margraviate became part of the Austrian dominions. The city has a good harbor, a cathedral and 30 churches, beside 2 convents, a college, and an academy, extensive salt works, an aqueduct, &c.

**CAPO D'ISTRIA**, or **CAPODISTRIAS**, a noble family which has flourished on the Ionian islands from the 14th century, and which is intimately connected with the early history of the modern Greek kingdom. I. JOHN ANTHONY, count of Capo d'Istria, president of Greece from 1827 to 1831, born in Corfu in 1776, assassinated at Nauplia, Oct. 9, 1831. He received a classical education at Padua and Venice, in-

tending to become a physician, but the political disturbances which his country experienced under Napoleon led him to a political career. When, after the expulsion of the French by the united Russian and Turkish forces, the Ionian islands became a vassal state of Turkey, under British and Russian protection, Capo d'Istria filled several public stations, and from 1802 to 1807 united the secretaryships of the interior, foreign affairs, the navy and commerce, in his own hands. The islands having been returned to France by the treaty of Tilsit, Capo d'Istria accepted a place in the Russian ministry of foreign affairs, where he soon gained distinction. As a member of the Russian embassy at Vienna in 1811; as a diplomatic commissioner at the headquarters of the army of the Danube in 1812; as a diplomatic agent of Russia in Switzerland in 1813, where he was prominently instrumental in imposing upon the people the federal constitution, which endured till 1848; lastly, as a member of the congress of Vienna in 1815, and the principal author of the resolutions of Carlsbad in 1819, Capo d'Istria was always found among the firm supporters of absolutism, though at the same time denouncing the despotism of Turkey, and secretly conspiring for the independence, or rather Russification of Greece. In 1816 he was appointed secretary of foreign affairs in Russia. In 1819 he visited his native country in order to sound the popular feeling. The results of his visit were stated by him in a small pamphlet, in which he endeavored to demonstrate that it was the province of absolute governments to educate the people for the enjoyment of freedom. This doctrine was not at all palatable to the leaders of the Greek insurrection, and the movement begun by them in 1821 was therefore disavowed by Russia so long as it seemed impossible to turn it to account for the secret objects of Russian policy. He lost his office in 1822, and went to Switzerland, where he succeeded in regaining the confidence of the Greek leaders. With the consent of the British ministry and the Russian government, both desirous to place a devotee of monarchical order at the head of Greece, he was elected president or regent of Greece by the national convention assembled at Damala (1827). Before assuming the government he went to St. Petersburg, where, it is generally believed, he received secret instructions from the Russian government. He landed at Nauplia, Jan. 28, 1828. For a very short time he commanded the confidence of the people. Instead of fulfilling his pledge to form a great national army and repulse by force the Turkish army under Ibrahim Pasha, he left the defence of the country to foreign diplomacy, crushed the liberty of the press, drove the patriots and heroes of the revolution from public offices, which were filled by him with his own creatures, promulgated a code of laws of the utmost severity, prevented the election of Prince Leopold of Saxe Coburg to the throne of Greece, and seemed to have no other object in view except to prepare Greece

for Russian annexation. The island of Hydra became the seat of a violent opposition against his measures as early as 1829. In consequence of the French revolution of 1830, insurrectionary movements broke out which only Russian assistance enabled him to suppress. But at last he was stabbed by the brothers Constantine and George Mauromichalis, as he was entering the church of St. Spiridion. II. AUGUSTIN, brother of the preceding, born in 1778, died in Corfu, in 1857. He was appointed by his brother military and political chief of continental Greece in 1829. Two of the ablest leaders, Gen. Church and Demetrius Ypselantes, absolutely refused to recognize his authority. After the assassination of his brother he assumed the government as chairman of the board of regency, and was elected president by the national convention assembled at Argos in Dec. 1831. The Russian government assured him of its sympathies, and he was recognized by the London conference of the allied powers. A few weeks later the opposition became so powerful that the great powers retracted their former action and compelled him to resign. He left Greece for St. Petersburg, April 13, 1833, taking the corpse of his brother with him.

CAPONNIERE, in fortification, a work constructed on the sole of the ditch of the fortress, in order to flank that ditch by its fire. The inventor of this kind of work is unknown; it is said to have been proposed in Italy as early as 1496, and it is certain that the Italian engineer, Pallavicini, constructed similar works in 1506. The first systematic application of caponnières for the defence of a ditch occurs in the work of Albert Dürer, the German painter, on fortification, printed in 1527. He applies them in his circular and quadrangular fortifications in the same manner as they are now actually constructed; and, indeed, it is hard to believe that Montalembert composed his polygonal system entirely without knowledge of Dürer's work. The idea, however, was neglected for more than 2½ centuries, during which the bastionary system was the only one recognized. In 1777 the French cavalry general, the Marquis de Montalembert, published the 2d volume of his work on the science of fortification, developing the polygonal system, in which the whole flanking defences of the ditch consist of powerful casemated batteries constructed on its sole, in the middle of each front or side of the polygon.

CAPPADOCIA, an ancient province of Asia Minor, between lat. 37° 16' and 39° 28' N., and long. 32° 50' 18" and 39° E. It was conquered by the Persians under Cyrus. After the era of Alexander the Great, it was ruled by independent kings until A. D. 17, when it was reduced to a Roman province by Tiberius. Christianity was early introduced into Cappadocia, as we learn by the 1st general epistle of St. Peter. Under the Persians or Macedonians, the province was divided into 2 satrapies, Cappadocia ad Pontum and Cappadocia ad Taurum, called afterward by the Romans Cappadocia Magna, also

Cappadocia simply. The chief town of the latter was Mazaca, afterward Caesarea, and the country was celebrated for its fine pastures and its superior breed of horses, mules, and sheep. Cappadocia shared the fate of the eastern empire until it fell into the power of the Turks, in whose possession it still remains, forming part of several modern eyalets of Asiatic Turkey.

CAPPE, NEWCOMB, an English dissenting minister, born in Leeds, Feb. 21, 1782, died at York, Dec. 24, 1800. He studied with Dr. Aikin at Kilworth, and Dr. Doddridge at Northampton, and at the university of Glasgow. While with Dr. Doddridge, he became satisfied of the evidences of revealed religion, of which he had formerly entertained doubts. At the university of Glasgow he made the acquaintance of Adam Smith, Moore, Cullen, and Black. He held the pastoral charge of the congregation of St. Saviour's Gate, York, for 40 years. He was the author of several theological works.

CAPPELL, the name of a French Protestant family, noted for the many learned theologians and jurists which it produced from the 15th to the 17th century.—One of the most prominent members was LOUIS CAPPELL, born near Sedan, Oct. 15, 1585, died at Saumur, June 18, 1658. He gained a high reputation as professor of divinity and oriental languages at the university of Saumur, and as an exegetical and critical writer. He is principally known, however, as a disputant with the Buxtorfs, in the Masoretic point controversy. The correctness of his views on that subject has been settled by the general consent of Hebrew scholars that the present system of pointing cannot be carried back beyond the 11th century.

CAPRAJA, the Capraria and *Ægilon* of the ancients, a small volcanic island of the Mediterranean, between the N. point of Corsica and the coast of Tuscany. It is about 15 m. in circumference; its surface is generally mountainous, and its principal product is wine. Wild goats still abound in the mountains. It has a town of its own name, with a safe harbor. In 1507 this island was taken from Corsica by the Genoese, and it is now a part of the province of Genoa. Pop. about 2,500.

CAPRARA, GIOVANNI BATTISTA, an Italian prelate and statesman, born in Bologna, May 29, 1733, died in Paris, June 21, 1810. He was not 25 years old when appointed by Pope Benedict XIV. vice-legate at Ravenna. He was afterward papal nuncio successively at Cologne, Lucerne, and Vienna, and in 1792 was made cardinal. In 1800 he was created bishop of Jesi. Having been appointed, in 1801, legate *a latere* to the French republic, he succeeded in arranging the terms of the concordat, which were agreed upon Sept. 18, 1801; and in April, 1802, that document was promulgated at Paris, and the Roman Catholic form of worship was inaugurated at the church of Notre Dame with great splendor. In May, 1805, he crowned Napoleon at Milan as king of Italy. Having returned to Paris as legate of the pope, he died there.

CAPRI (anc. *Capree*), a small and rocky Neapolitan island, in the Mediterranean, S. of the entrance to the bay of Naples, noted in history as the place where Augustus resided during his illness, and where Tiberius spent the last 10 years of his life. It is still celebrated for the beauty of its climate, which makes it a favorite resort for invalids, especially for those suffering from chronic bronchitis. The island is about 9 miles in circumference, and surrounded by steep and inaccessible cliffs. Total pop. about 4,000, comprising 2 small towns, Anacapri and the port of Capri. The latter is the see of a bishop, and contains a cathedral and some other churches; pop. about 2,600. Between the 2 mountains of limestone (the highest of which is Monte Solaro, rising nearly 1,800 feet above the sea), of which the island consists, lies a fertile valley, which yields grain, olives, grapes, and other fruits. The inhabitants are engaged in the production of the famous red and white Capri wines and of oil, in fishing and in the pursuits of the sea, and in catching quails, vast numbers of which are caught every spring and autumn on their passage from and to Africa. Remains of several of the 12 villas erected by Tiberius in various parts of the island are still to be seen, and other relics of antiquity have been excavated here. The French under Gen. Lamarque surprised this island, then in the occupation of the English under Sir Hudson Lowe (Oct. 1808), and compelled them to capitulate within 15 days after the invasion.

CAPRICCIO, in music, literally a whim or caprice, a term applied to that species of composition in which the composer arbitrarily deviates from the customary forms and gives free play to his fancy.

CAPRICORN, a sign of the zodiac, which the sun enters at the winter solstice in December; also a constellation formerly in this sign (see AQUARIUS). The tropic of Capricorn is the southern boundary of the torrid zone, at which the sun is vertical at noon only once a year, the day he enters Capricorn, usually Dec. 20 or 21.

CAPRIOLE, a peculiar leap made by a horse without advancing, in which, when at its height, he throws out his hind legs with a jerk, keeping them parallel and near together, and showing the shoes. It differs in the last particular from the croupade, and from the balotade in the jerking out of the legs. It is the most difficult of all the high airs in the manège.

CAPSA, an ancient city in northern Africa, in an oasis of the desert. Its site is occupied by the modern Gafsa, 74 miles W. of Oases. Tradition ascribed its foundation to the Libyan Hercules. It was destroyed by Marius in the war with Jugurtha, but afterward rebuilt.

CAPSICUM, a genus of plants, from 4 species of which are obtained as many varieties of the so-called cayenne pepper. The name capsicum is also applied to the product itself. The genus is of the *solanaceae* or nightshade family, and

has no relation with the family of *piperaceæ*, which furnishes the real peppers. The 4 species referred to are *C. annuum*, *C. frutescens*, *C. cerasiforme*, and *C. grossum*. The first 2 only are of importance. The first is an annual herbaceous plant, remarkable for its hardy nature. A native of tropical countries, in which it thrives luxuriantly in dry and poor soils, it is also cultivated in almost all parts of the world. It grows 2 or 3 feet high, and bears a pod or seed-vessel, called also its berry, of ovate or conical form, recurved at the end, green when immature, but bright scarlet or orange when it ripens in October. It is used in the green state for pickling, and in medicine when ripe and dried, and is ground to powder to make cayenne pepper. In England the dried berries kept in the shops are called chillies. This variety is imported from the West Indies, and is supplied from our own gardens. Its product is hot and pungent, but without aroma. *C. frutescens* furnishes the so-called bird or Guinea pepper, a hotter and more pungent and better flavored article, and to some extent aromatic. The plant is a shrub, best known in the East Indies. The berries are scarcely an inch long, and only a line or two broad. They contain each about a dozen reniform seeds.—The active principle of capsicum, called *capsicine*, is a volatile liquid, thick when cold, but very fluid before it disappears by heat in fumes. The vapor is so pungent, that what is produced from  $\frac{1}{2}$  a grain, when dispersed in a large room, will cause all present to cough and sneeze. It is obtained by digesting the alcoholic extract in ether and evaporating.—Cayenne is largely employed as a condiment, acting as a stimulant and aiding digestion. For these properties it is administered as a medicine; and it is also highly useful as a gargle in malignant scarlatina. In the West Indies, for violent cases of this disease, the preparation for both uses is to infuse for an hour in a pint of boiling vinegar and water 2 tablespoonfuls of the powdered pepper with a teaspoonful of common salt. When cold, the liquid is strained, and given in the dose of a tablespoonful every half hour. Capsicum is said to relieve the nausea of sea-sickness. It is also employed externally as a rubefacient and stimulant, either in the form of a cataplasm, lotion, or tincture.—The commercial cayenne is subject to gross adulterations. Red lead and vermilion, or sulphuret of mercury, are the worst materials introduced, and cases of poisoning are reported from this cause, both the lead and mercury having the property of aggregating in the system when taken in small quantities. They are added to keep up the color, which gradually fades with the age of the capsicum, also to increase the weight, and to disguise the other ingredients. Ochres are also employed for similar purposes; salt also, to improve the color and add to the weight. Ground rice and turmeric are more harmless additions.

CAPSTAN, a machine used on board vessels for weighing anchor, and for other operations

requiring a heavy pull. It consists of a vertical axle with holes around the head, into which bars, called handspikes, are inserted. The cable is passed 2 or 3 times around the axle, and a few men take hold of the loose end to give it a tension and keep the capstan clear of it. Others take hold of the handspikes and walk around with them. The power of a man thus applied is about equal to the traction of 25 lbs., hanging over a pulley, at a velocity of 8 feet per second. The capstan is rarely used, and when the handspikes are removed, it occupies on deck but a few square feet. A greater number of men may work at a capstan than at a horizontal axle, and they can act much more rapidly, as they have simply to walk around pushing the handspikes forward; whereas with a horizontal apparatus, as often as it is turned a quarter of a circle, they have to take out the bars on which they act and insert them in new holes before they can act again. Since the year 1820, numerous patents have been issued for improved capstans. Most of them consist in making the head separate from the axle, and adapting gearing, which may be connected or disconnected at will, to vary the power of the machine as occasions require. Another improvement, consequent upon the adoption of chain cables, consists in making the lower portion of the capstan the exact counterpart of the chain, so that each link as it comes up enters the corresponding recess, and the chain is thus held more firmly with half a ton than it would be with 3 tons around a smooth surface. The capstan is an instrument of the past, and has already been superseded by the steam winch on board of a large number of steamships, and it seems probable that before long each sailing vessel will have to be provided with a small steam engine for doing heavy work of the sort.

CAPSULE, a name given by botanists to any kind of dry seedvessel containing many cells and seeds, such as poppy heads, &c.; the word is derived from the Latin *capsula*, a small box. The pods of peas and beans, &c., are called capsules, as well as the seed-containing vessels or fruit of many other families of plants. A capsule usually opens by valves; and hence different varieties have been named bivalve, trivalve, quadrivalve, and multivalve. The parts of a capsule are: 1, the valves, ribs, or divisions which form the outward shell, and shield the fruit externally; 2, the partition walls, which form different cells internally; 3, the axis or columella, which unites the seeds with the internal parts of the capsule; 4, the cells occupied by the seeds; 5, the proper receptacle of each seed; and 6, the seeds contained within the capsule. According to the number of internal partitions in a capsule, they have been named unilocular, bilocular, trilocular, multilocular. Capsular seedvessels are generally dry and hard when ripe; and in this respect they are unlike the pulpy fruit of apples, plums, &c., or the juicy oranges and lemons. All fruits, however, are merely seedvessels, and the name capsule

is usually applied to all dry, hard seedvessels, irrespective of particular forms and families of plants.

**CAPSULES, GELATINE**, little bags made of thin films of gelatine, designed for holding doses of nauseous medicines, so that all being swallowed together, their taste may not be perceived. Different methods are given of preparing them. One is to take a cylinder of hard wood, rounded off at one end, and  $\frac{1}{4}$  of an inch diameter, and dip the end first into a saturated warm solution of soap in alcohol to the depth of  $\frac{1}{2}$  an inch. When the soap has hardened upon the wood, it is to be dipped into a concentrated hot solution of gelatine, and this repeated according to the thickness of deposit of gelatine desired. This is to be slipped off when it has hardened; and the process is to be repeated to procure another bag for a cover to the first one. When one is filled with the medicine, the other is applied upon it, and the 2 are tightly secured together by going over the line of junction with a camel's hair brush moistened with hot water. For other methods see *Journal de pharmacie et de chimie*, vol. xvii. p. 204, and the American "Journal of Pharmacy," vol. ix. p. 20.

**CAPTAIN**, the rank designating a commander of a company in infantry, or of a squadron or troop in cavalry, or the chief officer of a ship of war. In most continental armies in Europe captains are considered subalterns; in the British army they form an intermediate rank between the field officer and the subaltern, the latter term comprising those commissioned officers only whose rank does not imply a direct and constant command. In the U. S. army the captain is responsible for the arms, ammunition, clothing, &c., of the company under his command. The duties of a captain in the navy are very comprehensive, and his post is one of great responsibility. In the British service he ranks with a lieutenant-colonel in the army, until the expiration of 8 years from the date of his commission, when he takes rank with a full colonel. In the old French service he was forbidden to leave his ship under pain of death, and was to blow it up rather than let it fall into the hands of an enemy. The title of captain is also applied to masters of merchant or passenger vessels, and to various petty officers on ships of the line, as captain of the fore-castle, of the hold, of the main and fore tops, &c. The word is of Italian origin, meaning a man who is at the head of something, and in this sense it is often used as synonymous with a general-in-chief, especially as regards his qualities for command.

**CAPUA**, or **CAPOA**, a fortified town, in the kingdom of Naples, in the province of Terra di Lavoro, lying in a plain on the left bank of the Volturno, 15 m. N. W. of Naples, on the high way to Rome, and 10 m. from the Mediterranean; pop. about 10,000. The present Capua does not stand on the site of the Capua of antiquity. The remains of Roman times are numer-

ous. The cathedral and the church *dell' Annunziata* are splendid edifices, and contain many antique bas-reliefs built in with their walls. In 1808 the town suffered considerably from an earthquake.—The ancient Capua lay at a distance of 2 m. from the modern city. Its origin and early history are obscure. In 848 B. C., when threatened by the Samnites, the citizens called in the aid of the Romans, and were shortly afterward compelled to acknowledge the supremacy of Rome. It successfully resisted Pyrrhus, king of Epirus, but after the battle of Cannæ (216 B. C.), the popular party deserted Rome and opened the gates to the Carthaginian general. The winter spent by the Carthaginian troops in Capua demoralized them greatly, and was considered by the Romans to be the main cause of Hannibal's ultimate defeat. For the extravagance and effeminacy of its inhabitants, Capua bore a reputation similar to Sybaris and Sardis. It was famous for its manufactory of perfumes, with which the *unguentarii* or perfumers of Capua supplied the whole empire of the West. It was early celebrated for its gladiatorial exhibitions, and from Lentulus's school of gladiators in this city Spartacus, the rebel leader in the servile war, first broke loose with 70 companions. In 211 the Romans again entered Capua. All the senators were put to death, 800 of the nobles were thrown into dungeons, and the middle class of citizens were removed to a distance from their native place. The local magistracies were abolished, and a Roman prefect was appointed to rule over the city. During the social war the Capuans manifested the most unshaken fidelity to Rome, and were, as a reward therefor, reëndowed with many of their ancient municipal privileges. Julius Cæsar procured the passage of a law during his consulship, 59 B. C., in accordance with which 20,000 Roman citizens were settled in the environs of Capua. This circumstance conferred a new era of prosperity upon the city.—The barbarian invasions were fatal to old Capua. Genseric and his Vandals devastated it in A. D. 456. Narses restored it, but it sank again after the conquests of the Longobards in southern Italy. It was finally destroyed by the Saracens, A. D. 840, who reduced it to ashes. A few years afterward, Bishop Landulfus induced the inhabitants to return and establish a new city on the site of the ancient Casilinum. This was the origin of the modern Capua. The ruins of the amphitheatre, built of tiles and faced with white marble, are an object of attraction to antiquaries. The remains of old Capua have been described by Rinaldo in his *Memorie storiche della città di Capua*, Naples, 1753, and in Ruca's *Vetere Capua*, Naples, 1828. The site of old Capua is now occupied by the large village of Santa Maria di Capua, or Santa Maria Maggiore.

**CAPUCHIN**, a religious congregation belonging to the Franciscan order, instituted by Matteo Baschi. Matteo was desirous of



practising greater poverty than was required by the strict rule of the order of St. Francis. Having observed that a painting of St. Francis represented him with the hood of the habit of a different shape from that usually worn by the order, he made one like it and wore it, about the year 1525. This being condemned by his superiors as a novelty, he had recourse to Pope Clement VII., who gave him permission to wear the hood, and also permitted those who wished to imitate him to form a congregation. In 1528, Clement VII. gave them further permission to wear the habit and also a beard. They were to reside in solitary places, and live as hermits. When they commenced wearing their peculiar dress through the streets of Camerino, the children commenced calling after them *Capuccini*, whence they were styled Capuchins. The rules of the order are very strict: they are obliged to recite the canonical hours without singing, and the matins are to be said at midnight; an hour is to be spent every morning and evening in mental prayer and in silence; their food is of the simplest kind, one kind of meat only being allowed, and on fast days they are only allowed a kind of cheese called *cotta*. They are not allowed to wear any covering for their head, and their habit is of the coarsest description; nor are any ornaments of gold or silver allowed in their churches. In 1624, Urban VIII. caused a new church to be built for them at Rome, near the Barberini palace, he being a member of that family, and in 1631 the Capuchins took possession of it. The church contains the famous painting of St. Michael the archangel, by Guido. This congregation has supplied many missionaries to Asia, Africa, and America, and a great number of cardinals and bishops. It has produced also many illustrious writers.

CAPUDAN PASHA, is the title of the chief commander, or great admiral, of the Turkish navy, who is at the same time supervisor of the naval stores and establishments, and governor of the Turkish islands of the archipelago, and of some of the coasts of the empire. He is pasha of 8 tails, makes all the appointments in the navy, is a member of the divan. Every summer he makes an excursion with the fleet to the archipelago to exercise the ships, and levy the taxes. The title is probably a Turkish imitation of the Italian *Capitano*, like many other terms now usual in the Levant, and derived from the times of Genoese and Venetian influence in those regions.

CAPUT MORTUUM, a Latin name given by the old chemists to the fixed residue of distillation and sublimation, symbolized in alchemical writings by a death's head and cross bones.

CARABINE, or CARBINE, a short barrelled musket adapted to the use of cavalry. In order to admit of its being easily loaded on horseback, the barrel ought not to be more than 2 feet 6 inches long, unless it be breech-loading; and to be easily managed with one hand only, its weight must be less than that of an infantry musket.

The bore, too, is in most services rather less than that of the infantry firearm. The carbine may have either a smooth or a rifled bore; in the first case, its effect will be considerably inferior to that of the common musket; in the second, it will exceed it in precision for moderate distances. In the British service, the cavalry carry smooth-bored carbines; in the Russian cavalry, the light horse all have rifled carbines, while of the cuirassiers  $\frac{1}{2}$  have rifled, and the remaining  $\frac{1}{2}$  smooth barrels to their carbines. The artillery, too, in some services (French and British especially), carry carbines; those of the British are on the principle of the new Enfield rifle. Carbine-firing was at one time the principal mode of cavalry fighting, but now it is principally used on outpost duty, and with cavalry skirmishing. In French military works, the expression *carabine* always means an infantry rifle, while for a cavalry carbine the word *mousqueton* is adopted. Several improvements in breech-loading carbines have recently been made in the United States, and submitted for trial to an ordnance board at West Point (July, 1858).

CARABOBO, a province of Venezuela, bounded by the Caribbean sea, and by the provinces of Caracas, Varinas, Truxillo, and Coro; area 8,148 sq. m., pop. about 100,000. Its capital city is Valencia, but the province takes its name from a village 20 miles S. W. of the capital, where a battle was fought June 24, 1831, which secured the independence of Colombia. It is intersected by the head-streams of the Rio Portuguesa, and produces coffee, cocoa, wheat, tobacco, and sugar.

CARACALLA, MARCUS AURELIUS ANTONINUS, a Roman emperor, born at Lyons A. D. 188, died in 217. He was originally called Bassianus, but received the nickname of Caracalla, from a favorite Gallic tunic which he introduced into Rome. On the death of his father Severus at York in 211, he ascended the throne with his brother Geta, but soon caused the murder of the latter, and, according to Dion, of 20,000 Romans who were his partisans, among whom was the jurist Papinian. He multiplied extortions in order to purchase the favor of the soldiery, gave the right of Roman citizenship to all free men of the empire in order to impose taxes upon their estates, and admitted Egyptians to the senate. He made unimportant expeditions against the Gauls, Goths, and Parthians, and at Alexandria took revenge for some epigrams by a general massacre of the inhabitants. He was assassinated near Edessa on his way to Carrhes at the instigation of Macrinus, the pretorian prefect.

CARACAS, a province of the republic of Venezuela, bounded N. by the Caribbean sea, E. by Barcelona, W. by Carabobo, Cogedeg, and Barinas, and S. by Apure and Guiana; area 45,264 sq. m., pop. about 300,000. The N. part is in general mountainous, but toward the S. the surface expands into vast and fertile plains. The province is divided into 16 cantons, of

which the canton of Caracas is the richest and most populous.—The capital of the above-described province and of the republic of Venezuela, Caracas, is situated 11 m. S. S. E. of La Guayra, in lat.  $10^{\circ} 80'$  N., long.  $66^{\circ} 54'$  W. Its site is the declivity of a mountain nearly 3,000 feet above the sea. The streets are wide and well built, intersect each other at right angles, and are generally supplied with fountains. The houses are usually faced with stucco, are sometimes richly decorated, and have often terraced roofs. There are several spacious squares, the largest of which is the Plaza Mayor, or Great square, where the fish, fruit, and vegetable market is held. The principal public edifices are the churches, the convents, and the university, which was founded in 1778. The cathedral is a very large structure, and the church of Alta Gracia a very beautiful one. The Catucho feeds the fountains which supply the city with water. The exports consist principally of cacao, for which Caracas is celebrated, of cotton, indigo, coffee, tobacco, hides, and live cattle. The trade is carried on through the neighboring port of La Guayra, and the shipping of 1854-'55 comprised 45,450 tons, including import and export. For further commercial and for historical information, see VENEZUELA.—Caracas is the seat of the president, and of the chief judicial and ecclesiastical authorities of Venezuela. The schools, supported by the city at an annual expense of \$40,000, are well attended. The celebrated Bolivar was a native of Caracas, and in 1842 his remains were interred here. The town was visited by an earthquake in 1812, by which about 12,000 persons are said to have perished. The earthquake of 1828 also contributed to diminish the population and to injure the town. It has, however, been rebuilt since, and the population is believed to have risen again to about 50,000, and by some authorities even to 68,000.

CARACCIOLI, I. DOMENICO, marquis, an Italian statesman, born in Naples in 1715, died in 1789. He was ambassador to the court of France in 1770, and became acquainted with D'Alembert, Diderot, Condorcet, and other encyclopædists, who entertained for him a high regard. In 1781 he was appointed viceroy in Sicily, where he distinguished himself principally by the abolition of torture. II. FRANCESCO, prince, a Neapolitan admiral, born at Naples in 1748, died in 1799. He repeatedly commanded the Neapolitan fleet, when acting in concert with the English against the French, and thus became acquainted with Nelson. In 1798 he served under Nelson; and in 1799, with the consent of the king, he repaired to Naples, in order to prevent the confiscation of his property, and was appointed commander-in-chief of the navy of the "Parthenopean Republic." Although he reluctantly accepted this place, he successfully opposed, with a few ships, the landing planned by the combined English and Sicilian fleets. Naples

having been retaken, he was arrested, and in violation of the capitulation by which the officers of the late republican government were allowed to leave the country unmolested, he was brought a prisoner on board Nelson's ship, the Thunderer, arraigned before a Sicilian court-martial, and condemned to be hung. A request was presented in his name to the English admiral for a less ignominious mode of death; but Nelson, through the influence of Lady Hamilton, declined acceding to it, and, a few moments later, his old companion in arms was suspended from the yard arm of a Neapolitan frigate.

CARACOLE, in horsemanship, is an oblique tread, traced out in a semi-round, changing from one hand to the other, without a regular ground. When horses advance to charge in battle, they sometimes ride up in caracoles to perplex the enemy, and make them doubtful whether they are about to take them in the front or in the flank. Caracole is a Spanish word, and in that language signifies the motion that a squadron of horse make when upon an engagement. The first rank have no sooner fired their pistols than they divide and open into two half ranks, the one wheeling to the right and the other to the left, along the wings of the body, to the rear. Every rank observes the same order of firing; and turning or wheeling from the front to the rear is called a caracole. This is the same movement which is performed by infantry, in street firing on the advance, without making any halt, in column, the men who wheel off loading as they counter-march to the rear. To caracole is to go round in the form of a half circle.

CARACTACUS, king of the Silures, an ancient British people who inhabited Wales, died A. D. 54. He resisted the Romans for 9 years. Ostorius, sent by the emperor Claudius, at length defeated him and took his wife and children prisoners. He himself took refuge with Cartimandua, queen of the Brigantes (York), who delivered him for a reward to the emperor. His proud bearing and noble and pathetic speech so won the admiration of Agrippina and Claudius that they pardoned him and discharged him with presents.

CARAFÀ, MICHELE, an Italian musical composer, born in Naples, Nov. 17, 1787. He studied music under the best masters of his day, but served in the army until 1814, when he retired with the appointment of major, and devoted himself to music as a profession. In 1814 first appeared the opera *Il Vascello d'Occidente*, soon followed by *La Gelosia Corretta*, *Gabrielle di Vergi*, *Ifigenia in Tauride*, *Masaniello*, &c., &c. The *Solitaire* and *Masaniello* are considered his best. His compositions are noted for sweetness, simplicity, and naturalness of melody, and correctness and elegance of instrumentation.

CARAGA, a province of the Spanish Philippines, forming the N. E. division of the island of Mindanao. It is bounded S. by the territories

of the independent sultan of Mindana, and E. and W. by the sea; area 8,400 sq. m., pop. 42,000. This province is one of the poorest under the Spanish dominion; it has generally a sterile soil, and abounds in waste marsh lands. Its forests are, however, reputed to be of great value, consisting chiefly of the finest ship timber trees, especially the teak, which is not found elsewhere in the Philippine islands. Great numbers of wild buffaloes, hogs, deer, civet cats, and other musk-producing animals are found in the forests. Considerable quantities of gold are found in alluvial deposits on the Batoan river and its tributaries. The bulk of the population is of the Bisaya race; but there are several wild tribes: one called Mandaya, which have very fair complexions, and Spanish writers say that they are a mixed race descended from Malay women and some shipwrecked Dutchmen; another tribe called Tagabaloyo are said by the same authorities to be descended from shipwrecked Japanese, and native Mindanese women. There is a negro race called Mamamannua. The inhabitants subsist chiefly upon sago, fish, and roots of spontaneous growth. The Spanish are rapidly effecting a beneficent change in the condition of the semi-civilized and savage population of this province. Its only export at present is a small quantity of gold dust.

CARAITES, or KARAITES, a sect among the Jews, whose origin is very uncertain. Some Jews say that they are the same as the Sadducees, because they do not receive the traditions of the rabbins; others that they are reformed Sadducees, because they accept the doctrines of immortality of the soul, resurrection of the body, paradise and hell, which the Sadducees rejected. Others consider the Caraites to be the same as the doctors of the law mentioned in the New Testament. The Caraites themselves date their origin from the captivity of the 10 tribes by Shalmanezzer. Wolf attributes their origin to a massacre among the Jewish doctors under Alexander Jannæus, about 100 B. C. Steinschneider, in his "History of Jewish Literature," places the origin of Caraim as a literary development in Judaism from A. D. 750 to A. D. 900, and says that it sustained a very important part in the reformation of Jewish literature. He, however, admits a Caraitic tendency in Judaism of a much earlier date. The present principal seat of the Caraites is in the Crimea and in Austrian Galicia. They always worship toward the S., because they say that Shalmanezzer carried the 10 tribes from which they date their origin to the N., so that they must turn to the S. to face Jerusalem. The Caraites deny the oral law to have come from Moses, reject the cabalistic and chimerical interpretations of the rabbins, and observe the feasts with greater rigor than other Jews.

CARAMAN, or KARAMAN (anc. *Laranda*), a town of Asiatic Turkey, in the eyalet of Caramania, at the foot of Mt. Taurus, lat.  $37^{\circ} 12' N.$ , long.  $38^{\circ} 5' E.$ ; pop. about 12,000. It con-

tains the ruins of several beautiful Saracenic mosques, one of which is of marble, covered with arabesques, and supported in the interior by rows of columns. There are also 3 or 4 temples of modern date, a handsome Armenian church, and a Turkish castle encompassed by a wall which also encloses about 100 houses. Coarse blue cotton cloths and similar fabrics are manufactured.—Little is known of the ancient Laranda, on or near the ruins of which the present town was founded in the 14th century by Karaman Oglu, a Turkish chief, after whom it was named. It was the capital of a Turkish kingdom until the subjection of Caramania by Bajazet II. in 1486, when the seat of government was removed to Konieh (Iconium), and the glory of Caraman began to fade. Though residing at Konieh, the pasha takes his title from this place. The name of Laranda or Larenda is still used by the Christian inhabitants of the country and in the firmans of the sublime porte.

CARAMANIA, or KARAMANIA, also KARAMAN, a Turkish province or eyalet in Asia Minor, between lat.  $37^{\circ}$  and  $39^{\circ} 40' N.$ , long.  $30^{\circ} 50'$  and  $36^{\circ} 50' E.$ , including ancient Lycæolis and a portion of Phrygia Major, Galatia, and Cappadocia, bounded W. and N. by the eyalets of Anatolia and Sivas, S. by Adana, and E. by Marash, famous for its genial climate and for its tobacco, silk, cotton, sesamum, honey, wax, and excellent fruit. The soil is rich and dry, yielding abundant harvests; the vine and fig-tree, the laurel, myrtle, and clematis, and many odoriferous shrubs, flourish in profusion. The Taurus range traverses the entire length of Caramania, and forests of oaks and pines 100 feet high cover the mountain. The principal rivers are the Kizil-Irmak and the Sihon. In the S. W. are a large number of small lakes; also mineral springs. Fish abound in the rivers and the numerous small streams of the country. The inhabitants are mainly devoted to agricultural pursuits, particularly to the rearing of live stock, the vast plains affording abundant pasturage. The villages of the shepherds are composed of huts, covered with skins; most other houses are of earth, or of brick baked in the sun, and present a miserable appearance. Trade embraces, beside the products named, wool, horse and camel hair, gum tragacanth, which abounds in the mountainous districts, and various other commodities. The exports are carried on by caravans or through the nearest shipping ports. Capital, Konieh. Area 27,952 sq. m.; pop. about 1,000,000, comprising a great number of Armenians, Greeks, and Jews, but chiefly nomadic Turcomans.

CARAMNASSA, a river in the presidency of Bengal. It is a tributary of the Ganges, and is of interest on account of a superstition attached to it. A certain rajah once killed a Brahmin, and married his own stepmother. Nothing could expunge his crimes, save ablu-tion in a collection of all the holy waters of the world. A charitable saint undertook the task;

and from the aggregation of fluid a river was formed, which was so entirely exhausted of its abstergent powers, that ever afterward it was called *Caramnassa*, (deprived of virtue). The Hindoo is careful, if obliged to pass this baleful stream, that its waters shall not touch him; as otherwise all the merits acquired by a series of ablutions and other pious practices would be at once washed out.

**CARAMEL**, a black porous substance, produced from sugar heated to a temperature between 400° and 480°. It is also formed in the roasting of coffee and chicory. It is used to adulterate coffee, imparting to it and to the beverages substituted for it bitterness and color. It is also used for coloring wines.

**CARAT**, the name of an imaginary weight, by which diamonds are rated; and also a term used for expressing the fineness or purity of gold. The alloy is supposed to be divided into 24 parts called carats, and its fineness is reckoned according to the number of these which are pure gold. Gold 20 carats fine is 20 parts of pure gold alloyed with 4 of some other metal. The term has been so long in use that its origin is very obscure. Some suppose it to be derived from the Greek *καρσιον*, a fruit corresponding to the Latin *siliqua*; whence the Arab word *kyrat*, a weight. Bruce, in his "Travels," describes a bean he met with in a famous gold mart of Africa, which was used as a weight from remote periods, and which was called *kuara*. They vary little in gravity from the time the pods are dry, and being much alike they were in remote times carried to India for weighing diamonds. As usually employed by jewellers, the weight of a carat is 4 imaginary grains, of which  $74\frac{1}{4}$  are required to counterbalance 72 grains troy.

**CARAVAGGIO**, MICHEL ANGELO DA. See ANGELO DA CARAVAGGIO.

**CARAVAN** and **CARAVANSARY**, a party of travellers or pilgrims in the East, and an edifice for their lodging or entertainment. There may be said to be 2 distinct kinds of caravans. 1. Commercial caravans, formed of merchants who are crossing the deserts or exposed places for traffic; and 2, religious caravans composed of pilgrims going to some sacred place for worship. They often consist of 1,000 persons and several thousand camels. They are under the general superintendence of a *bashâ*, by whom each caravan is divided into a number of *cottors* or platoons. There are 5 sub-officers: 1, the officer of the march; 2, of the encampment; 3, of the servants and beasts; 4, of the baggage; and 5, the paymaster. A military escort and a *hydeer* or guide attend each caravan. These caravans travel mostly by night in the hot season, and when they do so are guided by means of fires or lights carried in iron boxes, supported on long poles, and borne at the head of each *cottor* or company. Each *cottor* has a box differing in form from the others, and so the boxes serve as standards to enable each pilgrim to know his

*cottor*. When a caravan is to encamp, the *cottor* standards are sent forward and stationed, and each *cottor* on coming up must pitch around its own standard. The places of all, both in the encampment and march, are permanently allotted by the *bashâ*. It was evidently to such a commercial caravan, made up of Ishmaelites and Midianites, that Joseph was sold by his brethren. The religious caravans are now principally made up of Mohammedans who make the pilgrimage to Mecca. Burckhardt, the great eastern traveller, who was at Mt. Arafat when the Syrian and Egyptian caravans for Mecca were encamped at its base, has given a very interesting description of the scene. From the top of the mountain he counted 3,000 tents, while he says that far the greater number of the pilgrims were, like himself, tentless. The number of pilgrims he estimated at 70,000 in these 2 caravans, and the number of languages they spoke at least at 40. The wife of Mehemet Ali required 500 camels to transport her baggage in the pilgrimage.—The **CARAVANSARIES** of pilgrims are generally the rudest structures consistent with the purpose of protection. They are mostly the creations of charity on the part of the inhabitants of the desert. Sometimes they are kept to receive travellers for pay, when they are more generously arranged and furnished. The first mention we have of such inns may be that in which the children of Jacob stopped to rest and feed their asses on their return to Egypt. The caravansaries for the accommodation of the commercial caravans are not provided by charity, but are erected at the expense of the merchants themselves.

**CARAVELLAS**, a seaport town of Brazil, on the bay of Caravellas, which opens into the Atlantic. It is a well-built place, and its harbor is the most frequented of any in the province. The productions of the province are exported hence to Rio, Bahia, and Pernambuco. Pop. of the district, 5,000.

**CARAWAY**, the fruit or seeds of the *carum carui*, a small biennial plant, which grows wild in the meadows and pastures of central and northern Europe, and is cultivated in gardens, as it is in this country. The root, which in the cultivated plant resembles the parsnip, is used for food in the north of Europe. The seeds mature the second year of the growth of the plant. They are collected by mowing the stalks and threshing, which, from the smallness of the seeds, should be done on a cloth. They are valued for their medicinal properties, for which, or rather perhaps for their pleasant aromatic flavor, they are introduced into the cakes called seed-cakes, and into some kinds of sugar plums. In Europe they are used in confectionary, to flavor liquors and cakes, and also bread, cheese, and other articles of food. Their medicinal action is to stimulate the digestive organs, and remove flatulency; they are used also to aid or modify the action of other medicines. An essential oil, *oleum cari*, is prepared by distillation

of the seeds, which possesses their properties, and is used to flavor medicines, and correct their nauseating and griping effects. An oily liquid, named *carvacrol*, is obtained by distilling oil of caraway with hydrated phosphoric acid, and turning the liquid back into the retort until it ceases to have the odor of caraway. It has the property of affording immediate relief to the tooth-ache when introduced into the tooth. Caraway seed is imported from Europe, and is also supplied in part from our own gardens. It is largely cultivated in Essex and Suffolk, England, being sown on old pasture lands, together with coriander and teasle. The coriander ripens the first year, the caraway in the summer, and the teasle in the autumn of the second year.

**CARBAZOTIC ACID**, called also **CARBAZOTIC** and **PICRIC ACID**, is obtained by the action of an excess of nitric on carboic acid, and also upon indigo, gum benzoin, resin, aloes, and similar vegetable substances. It is a very bitter substance, crystallizing in yellow prisms, which are volatile, and fuse into a brownish yellow oil. Its chemical formula is  $C_{12}H_8NO_6$ . It has been lately introduced to notice, is said to be beneficial in intermittent fevers, and is considered valuable in the dyeing of silks and woollens. It is thought that if the grass tree, or black bay gum from Australia, were employed and treated with nitric acid, as proposed by Dr. Stenhouse, the price of this article might be greatly reduced. In 1851, in Paris, where it was manufactured, it was sold for \$2 40 per lb. The yellow and green colors produced by this substance are described as very beautiful, and not liable to fade by exposure to the air, as is the case with those colors obtained from vegetable dyes.

**CARBOHYDROGENS**, a term applied by some chemists to combinations of carbon and hydrogen, including a large number of liquid organic substances, as some oils of wines and non-oxygenous volatile oils; also among solid bodies the substance caoutchouc, and among gaseous bodies the carburetted hydrogen or coal gas and olefiant gas. But by others it is used to designate those compounds in which the amount of carbon and hydrogen in each differs by an equal number of atoms, or by a multiple number, and which, on this account, are said to be homologous. Their physical characters are likewise varied by their amounts of carbon and hydrogen present, which affect particularly their boiling point. Thus,

	R. P.
Pyroxylic spirit, $C_8H_8O_2$ , boils at	188.2° F.
Alcohol, $C_2H_5O$ , " "	172.4° "
Potato spirit oil, $C_{16}H_{12}O_2$ , " "	275° "

Every 2 atoms of OH raise the boiling point  $84^\circ 2'$ . This is the use of the term, as given by Dr. Thomson.

**CARBOLIC ACID**. In the distillation of the tar obtained from bituminous matters among the first products obtained at temperatures between  $800^\circ$  and  $400^\circ$ , are some light essential oils, which collect upon the surface of the

water in the condenser. By agitating these oils with twice their bulk of caustic potash, and decomposing by muriatic acid, a colorless oil is obtained heavier than water, of acid reaction, and having some of the properties of creosote, which it much resembles. Its composition is  $C_{12}H_8O$ , HO, which is that of hydrous oxide of phenyl. Its specific gravity is 1.062; its boiling point  $368^\circ$  F. Its taste is burning and caustic. It acts upon the skin, and is poisonous; like creosote, it is used for the tooth-ache. It crystallizes in needles, which sink in water. The same substance is also obtained by distilling the *castoreum Canadense*. Carboic acid possesses in a high degree the antiseptic properties of creosote, and is found to be useful in preventing the putrefaction of animal matters. By the action of nitric acid it is converted into a substance called carbazotic acid, which is an important dyeing material. It is of further use in dyeing and calico printing, by preserving from decomposition the extracts of tanning matters, which are liable to ferment and be converted into sugar and gallic acids.

**CARBON** (Lat. *carbo*, coal), represented by the symbol C, one of the most common and important substances in nature, occurring in a great variety of forms in the vegetable, animal, and mineral kingdoms, in the two first named being by far the most considerable element. The charcoal prepared from many substances belonging to these presents it pure; but the diamond is crystallized carbon, contaminated, when colorless, by no foreign admixture. In this form carbon possesses the most brilliant lustre, and a hardness unsurpassed, which is represented upon the mineralogical scale by the highest number, 10. (See **DIAMOND**.) Carbon is remarkable for its allotropic character, presenting itself under various forms, while still in a state of purity. Beside those named, graphite may be regarded as one of its forms, the trace of other substances met with in its purest qualities being considered accidental; also gas carbon, the extremely hard substance which is deposited upon the inner surface of gas retorts; and lampblack, the soot deposited by highly combustible bodies, as they are imperfectly consumed. When 1 atom of carbon is combined with 2 atoms of oxygen, it forms the compound, carbonic acid gas, an essential constituent of solid limestones and other carbonates, and, in a gaseous form, of the atmospheric air. Its compounds with hydrogen are called carbohydrogens; they occur in gaseous, solid, and liquid forms. The chemical equivalent of carbon is 6, established by Dumas by the diamond, when consumed in a stream of oxygen gas, combining with this in the proportion of 6 parts to 16. Carbon resists the influence of many reagents which powerfully affect other bodies; acids and alkalis at ordinary temperatures have no effect upon it in its denser forms; but charcoal is oxidized in boiling nitric acid. Neither is it affected by the strongest heat attainable in furnaces, provided it be protected

from the action of air or oxygen. Pieces of charcoal are found enclosed in the cinders of the blast furnace, which have been for 24 hours or more in the intense heat of its interior, among melting ores and limestones, but protected in some way from exposure to the oxygen of the blast. The only indications of volatilization or fusion which it can be made to exhibit, are seen by exposing it in a vacuum to the heat from a Bunsen's battery of several hundred pairs so arranged in 5 or 6 series as to form 100 pairs of 5 or 6 times the ordinary size. It is then volatilized, and collects on the sides of the vessel in the form of a black crystalline powder. The same effect is produced, but more slowly, by exposing it to the heat, instead of in a vacuum, in a gas with which carbon does not combine. At the same temperature charcoal may also be bent, welded, and fused, becoming softer the longer the heat is continued. It is ultimately converted into graphite. Diamond is similarly affected. The production of gas carbon, which somewhat resembles this volatilized carbon, will be seen at the close of this article to have also furnished some hints as to the probable origin of graphite. No substance, unless it be crystallized boron, is more unalterable in most conditions, in which other bodies undergo a chemical change. It is taken up by some metals, when these are fused in contact with it, and its presence in cast iron and steel imparts to them the qualities that distinguish them from malleable iron. The most valuable qualities of carbon in practical uses are its strong affinity for oxygen at high temperatures, and its power of resisting in some of its forms the high heat of furnaces. The former quality gives to many of its varieties their value as combustibles (see FUEL), and it also renders carbon a most powerful reducing agent of the oxides of the metals; for which purpose, as well as for generating heat by its combustion, it is employed in smelting furnaces, bloomeries, &c. Its disappearance as carbonic acid gas adds greatly to the convenience of its use for this purpose. Its refractory character admirably adapts it as a material for crucibles; and when used in the form of paste of pure charcoal powder ground very finely, and applied as a lining to earthen crucibles, it serves not merely to protect the contents from injurious contact with the outer vessel, but also furnishes to these the best reducing agent or flux. The black lead crucibles or blue pots, are in part composed of graphite, which, when prepared by grinding and mixing with refractory earths, powerfully resists even the action of the blast in highly heated furnaces. Other useful purposes served by carbon are considered in treating of the subjects in which this is the principal element, as BONE BLACK, CHARCOAL, COAL, COKE, DIAMOND, FUEL, GRAPHITE, &c.—The peculiar form of carbon already referred to as being found lining gas retorts, and collected in crevices in their interior, possesses a metallic lustre, and is of mammillary structure, resulting

from the aggregation of the vesicles of which it is composed. It is sometimes fibrous, resembling graphite; its specific gravity is 1.76. Its hardness exceeds that of any other form of carbon, except the diamond. It is burned with difficulty in high heat when exposed to currents of air—a property which renders it useful for the illuminating points of the voltaic light. Its origin is commonly attributed to a deposition of carbon from olefiant gas,  $C_2H_4$ , which is generated in the distillation of bituminous coal, and is converted by parting with 2 atoms of carbon into marsh gas or the light carburet of hydrogen,  $C_2H_6$ , used for illumination. Dr. Hayes, from the fact that olefiant gas alone deposits carbon in the form of lampblack, and that only when mixed with bituminous vapors is the vesicular, brilliant form obtained, is led to believe that the olefiant gas is not the agent that produces this sublimate, but that it is a product of changes caused by heat in vapors of hydrocarbons. The bituminous vapors unmixed, as those of paraffine and other fatty hydrocarbons, affording it also, closely resembling that found in the retorts, confirms this view. Dr. Hayes considers that its mode of formation may be applied to explain that of the natural graphitic compounds; and that these, and in general, sublimes composed of vesicular forms, presenting laminae, under this view, become a class of bodies which owe their forms to the transporting power of vapors in motion.

CARBON, a county in the E. part of Pennsylvania, area about 400 sq. m., pop. about 17,000, formed in 1848 out of part of Northampton county, and named Carbon from its mines of anthracite. It is a mountainous district, made up of parallel ridges running in a N. E. and S. W. direction. The largest of these is the Blue or Kittatinny mountain, which bounds the county on the S. E. The coal mines are in the smaller ridges N. W. of this. Of these, Mauch Chunk, at the eastern termination of the southern anthracite coal field, is the most important. At the top of Summit mountain the beds have been opened and worked like a quarry, the coal lying in a mass not less than 50 feet thick. The Hazleton and Beaver Meadow mines are in the N. W. corner of the county. Anthracite is the principal production of the county. It is transported by railroads from the mines to the Lehigh river, and thence by slackwater navigation and canal, and also by the Lehigh Valley railroad, down the Lehigh to the Delaware river at Easton. The Lehigh river traverses the county across the line of its ridges; but the mines are only on its W. side, and from 6 to 10 miles or more distant. The yield of the mines in this county is about one-sixth of the whole production of anthracite. Capital, Mauch Chunk; pop. about 4,000.

CARBONARI (Ital. *carbonajo*, charcoal-burner), a secret political society, which became notorious in Italy about 1818, though it had existed long before. According to some accounts, the first carbonari were Scotch charcoal-burners, patron-

ized by Francis I., who made their acquaintance while on a hunting excursion to Scotland. Again, it is said that German charcoal-burners established such societies in the beginning of the 16th century. However uncertain the precise origin of the society, it is probable that the occupation of charcoal-burning offered inducements to mysterious associations; and at the beginning of the present century, when the Neapolitan republicans, alike opposed to the usurpation of Murat and the rule of Ferdinand, took refuge in the Abruzzi mountains, they organized, under the leadership of Capobianca, a carbonari society, adopting charcoal as a symbol of purification, and accepting the general basis of the traditional coal-burners' ritual with a view of wreaking revenge upon oppressors, or, as they expressed it in their symbolic motto: "Revenge upon the wolves who devour the lambs." Queen Caroline of Naples, and the Sardinian minister Maghella, are mentioned, in addition to Capobianca, as the prime movers of the Abruzzi league of carbonari. The little Neapolitan town of Lanciano, in the province of Abruzzo Citra, numbered as many as 1,200 carbonari, and all over the Abruzzi new societies were formed, whose political influence became so marked, that Prince Moliterni was despatched to them by Ferdinand with a view of securing their co-operation against the French. But the carbonari, although their unwillingness to bear any foreign yoke had originally given rise to their association, leaned more and more toward republicanism; and, especially when the expelled dynasty was reinstated upon the throne of Naples, they assumed an attitude of uncompromising hostility against monarchy. From 80,000 members, the number of carbonari all over Italy had been swelled in one month (March, 1820) to the enormous figure of nearly 700,000, including many persons of education and good family. A great number, however, became carbonari under the impression that the society was a masonic lodge, unconnected with politics.—The place where the carbonari assembled was called the *baracca*, or collier's hut; the country round their gatherings was a forest; the interior of the baracca was called the *vendita*, from the sale of coals which the colliers are supposed to carry on in their huts. Each province contained a large number of such *baracche* or huts, and the union of the different provincial huts constituted "a republic." The leading huts were called *alte vendita*, and had their headquarters at Naples and Salerno. Their attempt to centralize all the huts under one and the same head proved fruitless, although some of the carbonari republics presented an imposing character of unity. There was, for instance, the republic of western Lucania, in the mountainous coast district of the province of Principato Citra, which embraced 182 baracche or huts, and had its headquarters at Salerno, the chief town of the province.—The growing influence of the order alarmed the conservative governments of Europe, especially the Bourbons,

as, since 1819, the carbonari had put themselves into contact with French republicans. The trial of the Corsican Guerini, who, in accordance with the decree of the *alta vendita*, had stabbed a fellow-member for having betrayed the secrets of the society, added to the excitement. Previous to 1819, the carbonari societies in France took their rise principally from the *charbonnerie*, which flourished especially in the Franche Comté. But the movements of the Italian carbonari, especially the insurrections in Sicily and Sardinia, gave a fresh impulse to the French fraternity, and under the auspices of Buchez and Flottard, a new movement was set on foot in Paris, in an obscure coffee-house in the rue Copeau; and in Buchez' lodgings, in the rue Vieille du Temple, a species of military academy was established for the benefit of the society. Men like Voyer d'Argenson, Lafayette, Lafitte, Dupont de l'Eure, Buonarroti, Barthe, Teste, Boinvilliers, and other republicans of mark, joined the movement, which adopted the ritual of the Abruzzi carbonari, with the sole modification, that while the Neapolitans had only the one superior division of *alta vendita*, the French carbonari classed themselves in 4 *ventes*, viz.: *ventes particulières*, *ventes centrales*, *hautes ventes*, and *ventes suprêmes*. The admission to the *ventes* was also surrounded with greater formalities in France, although, after admission, the principle of equality prevailed, and, like the Italians, the French carbonari greeted each other as *bons cousins*. The statutes of the French carbonari are most stringent. The faintest whisper of the secrets of the society to outsiders—or *patens*, as outsiders are called—constitutes treason, and, as such, is punishable with death. No written communications are permitted. The *vente suprême* communicates with the other *ventes* by means of special agents, who exhibit their authority by the presentation of the half of a card, which is cut in a peculiar manner, and which must correspond with the other half transmitted, for this particular purpose of identification, to the other *ventes* with whom the agent has to communicate. Among the many symbols, and signs, and passwords of the French carbonari, the passwords *speranza*, *fede*, *carità*, had a special and peculiarly sacred meaning. The orders of the *vente suprême* were followed blindly, and the sacrifices which a carbonaro must suffer for the interests and principles of the association are boundless. In 1819 there were about 20,000 carbonari in Paris, and their principal associations were known under the names of la Washington, la Victorieuse, la Bélisair, la Sincère, la Réussite, les Amis de la Vérité, la Westermann, &c. But there were nearly 1,000 *ventes*, as no *vente* could have more than 20 members. From Sept. 1820, until March 16, 1821, a separate committee sat at Paris on military affairs, as the army contained a large number of carbonari. In 1821 the government was officially informed that the society existed in 25 out of the 86 departments of France. At

that time the number of carbonari in France could not have been less than 600,000, with more than 700,000 in Italy, and perhaps 200,000 scattered over Spain, Portugal, &c. The troubles of 1820 were ascribed to their influence, which became truly formidable by the martyr spirit displayed by some carbonari in the trials arising from the conspiracy of Aug. 18, 1820, and again in 1822. The *congrès national* of the carbonari, which had its head-quarters at Paris, seemed for a time omnipotent. All the insurrectionary movements from 1819 to 1822 were laid at their door. One of the cardinal points in the creed of the French carbonari was to make Paris the political focus of the world. After the July revolution of 1830, many carbonari gave in their allegiance to Louis Philippe; but at that time a new *charbonnerie démocratique* was founded by Buonarroti upon the theories of Babeuf, which Teste, who was a prominent member, expounded in his *Projet d'une constitution républicaine*. The last public vestige of a carbonari association was in 1841 in southern France.

**CARBONATES.** The combinations of carbonic acid with bases are very numerous, notwithstanding that the acid itself is one of the most feeble, and is easily expelled with effervescence by nearly all the other acids. Merely a red heat alone expels it from all the carbonates, except those of potassa, soda, lithia, barytes, and strontian; and the last 2 are decomposed by an intense white heat. In contact with charcoal heated to redness, all are decomposed, and a metal or an oxide is produced. The carbonates of ammonia, soda, and potassa alone are readily dissolved in water; the others are insoluble, or nearly so; but if free carbonic acid is present, their solubility is increased. The simple carbonates, or combinations of 1 equivalent of carbonic acid and 1 equivalent of the base, may be regarded as neutral salts. The proportion of oxygen in the acid and base of these is as 2 to 1. Combinations of 2 equivalents of the acid to 1 of the base are bicarbonates, and those of 2 of the base to 1 of the acids are called dicarbonates. Compounds are met with in nature of double carbonates, as dolomite and baryto-calcite—the former a compound of carbonate of lime and carbonate of magnesia, and the latter of carbonate of barytes and carbonate of lime. Among the most important carbonates are those of lime, potassa, soda, and ammonia, the last 3 of which will be found treated of under the names of their bases. Carbonate of lime, in its purest natural form, is the mineral calcareous spar (which see). Chalk is also composed of it, and it is the principal ingredient in the limestones and marbles. It consists of 1 atom of lime, the chemical equivalent of which is 28, and 1 atom of carbonic acid, 22. These making 50, the percentage of each ingredient is consequently double its equivalent number. So abundantly diffused is this compound among the strata that form the crust of the earth, that it has by some been supposed to constitute about  $\frac{1}{3}$  their

substance. It is recognized by its moderate degree of hardness, being easily scratched with a knife to a white powder, whatever the color of the stone may be, and by its effervescing with acids. Heated to redness, its carbonic acid gas escapes, and quicklime remains. But it may be subjected to intense heat in strong close vessels, so that it may even be melted, and still retain its original composition.

**CARBONDALE**, a city of Luzerne co., Penn., at the head of Lackawanna valley, and near the source of the Lackawanna river. A railroad 17 m. long connects it with Honesdale. The Lackawanna valley is extremely rich in beds of coal, which, in the vicinity of Carbondale, are 20 feet thick. The mines are worked by the Delaware and Hudson canal company, who take out annually about 500,000 tons. The coal is drawn up inclined planes by steam engines, to a height of 850 feet; thence it is conveyed by railroad to Honesdale; and from Honesdale, by the Delaware and Hudson canal, to the Hudson river. The city was incorporated in 1851, and is rapidly increasing. Pop. in 1854, 7,500.

**CARBONIC ACID**, a gas discovered in 1757 by Dr. Black, and called by him *fixed air*. He detected it in limestone and magnesia, from which he found it could be expelled by heat and the acids, and also noticed that it was produced by combustion, fermentation, and breathing. Lavoisier demonstrated its composition synthetically by burning carbon in oxygen, and obtaining this product. It was analyzed by Smithson Tennant, by causing it, as evolved from heated limestone, to be decomposed by the vapor of phosphorus passing over it; carbon was deposited in a light black powder; the oxygen combined with the phosphorus, producing phosphoric acid, which by its union with the lime converted this into a phosphate. The composition of this gas is,

Carbon, 1 atom.....	= 6, or per cent.....	37.37
Oxygen, 2 atoms.....	= 16, " " " " " " " " " "	72.73

Its chemical equivalent then = 22, and it is represented by the symbol  $\text{CO}_2$ . The volume of the oxygen it contains is the same as that of the compound produced. Compared with air, its weight is as 1.524 to 1. It may be poured almost like water from one jar into another, displacing the air before mixing with it, as may be shown by its extinguishing a light placed in the lower vessel. It is without color, but has a decided sour taste, and a pungent odor. Its feeble acid reaction is shown in transiently changing litmus paper red. Flame is immediately extinguished when it is mixed with air in the proportion of 1 part to 4. Unmixed with air, it is entirely irrespirable; it is rejected with violent spasms of the glottis. In the atmosphere it is universally diffused in proportion exceeding  $\frac{1}{1000}$  part by measure, even at the greatest height reached by man. It is this small quantity which furnishes to growing plants the carbon of their solid structures; and as the supply is diminished by



this enormous absorption, the combustion and decay of organic bodies, and the respiration of animals, ever make good the deficiency. The great weight of this gas tends to keep it in the low places where it is generated, though, like other gases, it has also the tendency to mix with atmospheric air. Hence it is always prudent, before descending into badly ventilated wells, to let a candle down to prove the presence or absence of the gas. It is related by Dr. Christison, that cases have occurred of men becoming instantly insensible, even when the light burned. This may be owing to some peculiarity of the mixture of gases not understood, probably to the presence of carbonic oxide; for it has happened to the writer to descend several times into air so impure, that a candle could not possibly be lighted in it, and to remain with another person long enough to make many ineffectual attempts to ignite it, and this with no other effect than a severe headache. In mines it is a very common thing for the men to continue their work in an atmosphere so foul, that their candles go out, and are then relighted from the fire still in the wick, by swinging them quickly through the air, when they burn a little while and go out, and are again relighted in the same way. The son of Berthollet, the chemist, who destroyed himself by inhaling the fumes from burning charcoal, writing down his sensations at the time, remarked that the candle was soon extinguished. The lamp continued to burn, and was flickering, as he became himself powerless to record more. Persons made insensible by inhaling this gas, may be restored by immediately dashing cold water over them. This is the practice pursued at the famous Grotto del Cane at Naples, in order to restore the dogs, which, for the gratification of visitors, are exposed to the fumes of the gas, into which they are dipped as into an invisible bath. Such natural accumulations of this gas are not very rare, though much that is evolved from the earth is absorbed by the waters it meets, some of which are almost as highly charged with it as the "mineral" waters of the shops. It is stated by Dr. Thomson that the Upas valley of Java, so celebrated for its pestilential vapors, is not altogether fabulous, but that these vapors are derived from quite another source than the poisonous Upas tree. From a deep dell immense quantities of carbonic acid are evolved, which contaminate the lower strata of the air throughout the valley, and sufficiently account for the remains of men and animals which lie strewn over it. When the air of wells is too impure for men to descend, it may be driven out by any of the ordinary modes of ventilation, by agitating the column for some time in any way, by the explosion of powder; or, as suggested and practised by Prof. Hubbard, by lowering a vessel containing ignited charcoal nearly to the bottom. Incandescent coals have the property of absorbing many times their bulk of this gas, and when cooled they may be raised up, reignited,

and lowered again. A well in which a candle would not burn within 26 feet of the bottom, was thus purified in the course of an afternoon. —Water readily absorbs carbonic acid, from which it may be freed by boiling, freeing, or being placed under the exhausted receiver of an air pump. Under the ordinary pressure of the atmosphere, and at a temperature of 60°, water takes up its own volume of the gas, and according as the pressure is increased, so is the bulk of the gas forced into the water. It gives a pungent, pleasant, slightly acid taste, and the sparkling effervescence seen in bottled liquors, in which it has been generated. The gas obtained from powdered carbonate of lime or limestone, exposed to the action of hydrochloric or sulphuric acid, is used to saturate water for drinking. It is generated in strong metallic vessels, capable of sustaining a pressure of 4 or 5 atmospheres or more. This is the "mineral water" or "soda water" of the apothecaries—both improper names, as it contains neither soda nor other mineral substance. Exposed to the air, the greater part of the gas soon escapes, and when thoroughly expelled by boiling, the water has an insipid taste. Pure lime water detects its presence in solution, becoming immediately turbid, as the lime seizes upon the gas, and is converted into an insoluble white carbonate. But if the gas is greatly in excess, a portion of this is redissolved. Not only is limestone soluble in water impregnated with this gas, but metallic bodies are also acted upon by it, and converted into carbonates. As some of these are soluble and possess poisonous qualities, regard should always be had to this in the use of leaden pipes and vessels used for conveying and containing water, which by any means may be impregnated with the gas; and the copper gas generators of the druggists should especially be protected by a lining of tin, glass, or porcelain.—By subjecting carbonic acid gas to powerful pressure, Prof. Faraday succeeded in obtaining it in a liquid form. Thilorier repeated the experiments, and congealed the condensed gas into a solid form like snow. The pressure used for this purpose is that of 36 to 40 atmospheres. Sulphuric acid is made to react upon bicarbonate of soda in strong cast iron cylinders, and the gas is passed through very small metallic pipes into a reservoir placed in a freezing mixture. In this it solidifies. In one of the early experiments of Thilorier, in a course of public lectures at Paris, the apparatus of cast iron exploded under the enormous pressure, and one of the assistants was so much injured, that he died in a few hours. It was observed by Thilorier, that when the liquid gas was allowed to escape into a brass box through a small tube, the cold produced by the sudden evaporation of one portion was so intense, that it served to congeal the remainder of the gas. This snowy product, remelted and resolidified, becomes a clear crystalline solid like ice. Having a low conducting power, it is not so volatile as the liquid gas; and though its real temper-

ature is more than 100° below the zero point of Fahrenheit's thermometer, it does not cause a strong sensation of cold. Mixed with ether and then evaporated under an exhausted receiver, the greatest degree of cold ever known was obtained by Prof. Faraday. The spirit thermometer sunk to 166° below zero. With the control of such a congealing temperature and the application of pressures varying from 27 to 58 atmospheres, Prof. Faraday succeeded in converting several of the compound gases into liquids and colorless transparent solids. An illustration of the intense cold produced by the evaporation in the open air of the solid gas and ether is given in the freezing of 10 pounds of mercury in less than 8 minutes, by contact with these substances upon its surface. A large lump of the gas was kept for a minute in a red-hot crucible, and a pound of mercury was immediately afterward frozen with it. The vapor given off from the solid gas possesses a higher tension than that from any other substance; and unlike the vapor from other bodies, it is developed by lowering instead of raising the temperature. This interesting subject may be found more fully treated in Brande's "Manual of Chemistry."

**CARBONIC OXIDE**, or **OXIDE OF CARBON**, a gas containing one equivalent less of oxygen than carbonic acid, being a combination of 1 equivalent each of carbon and oxygen—hence represented by the symbol CO. It contains 42.9 per cent. of carbon and 57.1 per cent. of oxygen. Its weight compared with air is 0.967. It is a product of imperfect combustion, and is generated in large fires in close furnaces in enormous quantities, mixed with carbonic acid and other gaseous products of combustion. By the introduction of atmospheric air to it while highly heated, it combines with another atom of oxygen, burning with a blue flame and becoming carbonic acid. It is visible by night undergoing this change, as it meets the air when issuing from the tops of chimneys of large furnaces, indicating imperfect combustion within the furnace, and consequent want of economy in the use of the fuel. In the large iron establishments, this gas is utilized by causing it to burn with the fresh air admitted under the boilers of the steam engines, or in the chambers constructed for heating the air blown into the furnaces. If the flow of the gases be obstructed, or in any way irregular, explosions may result by sudden admission of oxygen or of atmospheric air to them when highly heated. When mixed with pure oxygen, carbonic oxide is by the electric spark converted into carbonic acid with an explosion. The oxide may be re-obtained by passing the carbonic acid through tubes containing red-hot charcoal or metallic iron, which take up 1 atom of oxygen.—Carbonic oxide is a colorless gas, without smell or taste, but more irrespirable and poisonous than carbonic acid. Its inhalation as it issues from furnaces sometimes causes immediate asphyxia to the workmen. It undergoes no change like

carbonic acid under heavy pressures at the lowest temperatures; nor is it taken up by water like this gas, nor does it produce similar acid reactions in changing vegetable blues to red. Heat and electricity produce no change in it when alone; when mixed with carbonic acid, it may be separated and obtained pure by introducing quicklime or potash, which absorbs the carbonic acid. The mixture free from other gases is obtained by treating the biocalate of potash hot with concentrated sulphuric acid. Other processes also are given in chemical works.

**CARBONIFEROUS** (Lat. *carbo*, coal, and *fero*, to bear), usually applied to the group of rocks between the old and new red sandstones in which the great deposits of mineral coal are mostly found. The carboniferous group has the same signification as coal formation.

**CARBUNOLE**, an unhealthy inflammation of the surface, accompanied by a sloughing of a circumscribed portion of the subcutaneous cellular tissue; of the same nature as a boil, only deeper seated and of larger size. It begins by a hard, tense swelling, of a livid and shining appearance, and with severe burning pain; it is generally accompanied by feverish symptoms, often of considerable severity, and is slow in its progress; in from 1 to 8 weeks the skin becomes thin and perforated by numerous holes, from which issues a thin whitish discharge; the ulcers finally unite into one of large size, at the bottom of which is seen a soft grayish mass, the slough of the cellular tissue, with a very disagreeable odor; this slough or core is soon separated, leaving a deep excavation, with thin edges, and surrounded by a livid skin. The swelling may vary in size from 1 to 6 inches in diameter, and is usually found upon the back, nape of the neck, and nates; it may occur also on the shoulders, chest, lower jaw, and lower extremities. It is most common in adults and old persons, whose constitutions have been broken down by intemperance, exposure, hard study, or mental anxiety; it is always an evidence of a vitiated state of the blood and of derangement of the digestive organs. It sometimes appears to be the means of removing morbid matters from the system. If of large size, in an enfeebled constitution, or on or near the head, a carbuncle may endanger life. The local treatment which has been found the best, is to make free incisions into the tumor, to allow the escape of the discharge and sloughs, to relieve the engorged tissues by the loss of blood, and to excite them to healthy suppuration and granulation; warm and stimulating poultices, ointments, and lotions, hasten the cure. At the same time, the diseased secretions of the alimentary canal should be removed by purgatives; the strength supported by nourishing diet, bark, and the mineral acids; irritability calmed by small doses of opium; and the blood renovated by a judicious exhibition of preparations of iron.—In mineralogy, the name of a precious stone much valued

by the ancients. It was probably a blood-red garnet.

**CARBURETS**, or **CARBIDES**, combinations of carbon with the metals and simple bodies, as steel and cast iron, which are carburets of iron. The most interesting of these is the volatile liquid, sometimes called carburet of sulphur and alcohol of sulphur, but now known by the name of bisulphuret of carbon. It may conveniently be described in this place. It is a heavy, clear fluid, of a strong fetid odor, and very inflammable. Its specific gravity is 1.298, its boiling point  $118^{\circ}$ . It evaporates with great rapidity, absorbing so much heat, that quicksilver may be frozen in a tube surrounded with lint wet in this substance, and placed in the exhausted receiver of an air pump. Its composition is carbon 1 atom and sulphur 2 atoms, or per cent. 15.8 of carbon and 84.2 of sulphur. The mode of preparing it is to pass the vapor of sulphur over charcoal heated to redness in a tube, and collect the fluid which goes over in water. It should be redistilled to free it from moisture and excess of sulphur. This substance is particularly interesting for its strong solvent power, and the readiness with which it passes into vapor. Its volatility has suggested its use for engines, as a substitute for water, and working models have been made to run by it. The design was to condense it, and use the same material over and over. It is used now principally for varnishes, and for dissolving caoutchouc, &c. In medicine it is employed as a stimulant, to excite the natural secretions of the skin, kidneys, &c., to increase the animal warmth, accelerate the pulse, &c. Recently it has been successfully applied to indolent tumors, and to the glands of the ear to remove deafness.

**CARBURETTED HYDROGEN.** Two compounds of carbon and hydrogen are designated by this term, one called the light carburetted hydrogen, and the other olefiant gas. The former is also known as the fire-damp of the miners, marsh gas, &c. It was observed in coal mines as early as 1640. Dr. Franklin, in 1774, called the attention of Priestley to an inflammable gas obtained in this country by stirring stagnant pools. It was first accurately described by Drs. Dalton and Thomson in 1811. It is a colorless gas, without taste or smell, and neither of acid nor alkaline properties. Its composition is carbon 1 atom, hydrogen 2 atoms,  $\text{C H}_2$ , or per cent., C—75, H—25. Its weight, compared with that of air, is 0.555. Burning bodies immersed in it are extinguished, and it does not support respiration. It is highly inflammable, burning with a yellow flame; but it requires a high heat to ignite it. United with oxygen or atmospheric air in due proportion, a compound is produced which explodes with the electric spark or the approach of flame. The mixture of air to produce an explosion may be from 7 to 14 times that of the gas. Water and carbonic acid gas result from the chemical change. In mines of bituminous coal this gas is generated abundantly, and it also issues from

the earth in various parts of the world. The burning springs of Bakoo have already been noticed in the description of that place. Similar springs are met with in western New York, Pennsylvania, and Virginia; and the gas from some of these is used for illuminating purposes. The principal interest that attaches to this gas is owing to the terrible explosions it has caused in the English coal mines, and which led Sir Humphry Davy and George Stephenson to investigate the properties of the gas with a view of discovering some method of protecting the miners. Thus the safety lamp was discovered, which still continues to be the most valuable guard next to thorough ventilation. Olefiant gas, the other variety of carburetted hydrogen, was discovered by some Dutch chemists in 1796, who gave it this name in consequence of its forming an oily-like liquid with chlorine. It consists of 85.71 per cent. of carbon and 14.29 of hydrogen, and is properly represented by the symbol  $\text{C}_2\text{H}_4$ . Its specific gravity is very near that of atmospheric air, being estimated at 0.9674–0.9852. The gas possesses an odor slightly ethereal. Burning bodies are extinguished, and animals cease to breathe in it. It burns with a dense white light. Mixed with 3 or 4 volumes of oxygen or 10 or 12 of air, it violently explodes by the electric spark or flame. Exposed to red heat in a porcelain tube, it is decomposed, charcoal is deposited, and light carburetted hydrogen or hydrogen remains. A succession of electric sparks convert it into charcoal and hydrogen, the latter occupying twice the original bulk of the gas. It is liquefied under the pressure of 40 atmospheres, when exposed to the low temperatures attained by solid carbonic acid and ether in a vacuum. In this form it is a clear, colorless, transparent fluid.—Several methods are given for obtaining it. It results from distilling coal or fat substances in close vessels. Alcohol distilled with 4 to 7 times as much sulphuric acid yields it, and the gas is purified by passing it through lime water.

**CARBURIS**, **MARINO**, count, a Greek engineer, born at the beginning of the 18th century, at Argostoli, Cephalonia, died 1782. He received a thorough education at the university of Bologna; being banished for some youthful but criminal folly from Greece, he assumed the name of Lascari, and entered the Russian service. The empress Catharine II. appointed him lieutenant-colonel of the corps of engineers, and intrusted him with the construction of the work connected with the statue intended for Peter the Great. Carburis procured a monolith consisting of a block of granite from the gulf of Finland, 21 feet high, 40 feet long, and 27 feet in width. This block was imbedded 15 feet deep in a swamp. The difficulty was how to extricate it and convey it to St. Petersburg. Carburis invented a machine for this purpose, and under his superintendence the block was safely shipped to the shores of the Neva, and from thence transported by land to the public square of St.

Petersburg, where it was erected Sept. 30, 1769. The empress of Russia appointed him director of the military academy for young noblemen connected with the engineering department of the army. But receiving permission to return to Greece, he settled in Cephalonia. Here he experimented in the cultivation of indigo, and in the growth of sugar and of American cotton, until after 4 years he was assassinated by some Laconian laborers. The wife of Carburis was also severely wounded, but survived her husband. The mechanical apparatus used by Carburis in the removal of the Russian monolith was, at the request of the French government, placed in the *conservatoire des arts et métiers*.

CARCAJENTE, a town of Spain, in the province of Valencia, in a beautiful plain on the Zucar. It is handsome and prosperous, and has several linen and woollen manufactories. Many Roman remains have been discovered in its vicinity. A battle between the Spaniards and French took place near this town, July 13, 1813, in which the former were defeated. Pop. in 1852, 7,280.

CARCOASS, a shell filled with inflammable composition, the flame of which issues through 3 or 4 holes, and is so violent that it can scarcely be extinguished. They are thrown from mortars, howitzers, and guns, in the same way as common shells, and burn from 8 to 10 minutes. The composition is either melted over a fire, and poured hot into the shell, or it is worked into a compact mass by the aid of liquid grease, and then crammed into the shell. The fuse holes are stopped with corks or wooden stoppers, through which a tube, filled with fuse-composition, passes into the shell. Formerly these carcasses were cast with a partition or diaphragm, like the present shrapnell shells, the bottom part being destined to receive a bursting charge of gunpowder; but this complication is now done away with. Another kind of carcasses was formerly in use, constructed like a light ball, on two circular iron hoops, crossing each other at right angles, over which canvas was spread, thus forming an imperfectly spheroidal body, which was filled with a similar composition, containing mostly gunpowder and pitch. These carcasses, however, have been abandoned, because their great lightness made it almost impossible to throw them to any distance, or with any precision. The compositions for filling our modern carcasses vary considerably, but they each and all consist chiefly of saltpetre and sulphur, mixed with a resinous or fatty substance. Thus the Prussian service uses 75 parts saltpetre, 25 parts sulphur, 7 parts meal powder, and 88 parts colophony. The British use saltpetre 100 parts, sulphur 40 parts, rosin 80 parts, antimony 10 parts, tallow 10 parts, turpentine 10 parts. Carcasses are chiefly used in bombardments, and sometimes against shipping, though in this latter use they have been almost entirely superseded by red-hot shot, which is easier prepared, of greater precision and of far more incendiary effect.

CARCASSONNE, a city of France, chief town of the department of Aude, 488 m. S. of Paris, on the river Aude, which divides it into 2 parts, the old city and the new, joined by a bridge of 10 arches. The new town is well built, with broad streets intersecting each other at right angles. Carcassonne is an important manufacturing and commercial centre, and contains large woollen factories, producing a fine cloth, highly esteemed for its brilliant dyes, which is especially exported to the Levant, Barbary, and South America. No place, perhaps, in France, has preserved to a greater extent the aspect of a fortress of the middle ages. It is enclosed by double walls, flanked with towers, and protected by a strong castle. Carcassonne is supposed to have been the ancient Carcasum, which was the chief town of the Volce Tectosages, who were conquered by the Romans. The Visigoths probably built the inner line of the walls, and part of the castle. These fortifications, however, did not prevent the storming of the town by the Saracens. Although subsequently strengthened by the warlike viscounts of Carcassonne, and defended by the heroic Raymond Roger, they could not long withstand the crusade against the Albigenses. In 1247, Carcassonne submitted to the king of France. It is the seat of a bishopric, has tribunals of primary jurisdiction and commerce, a departmental college, and other learned institutions. In the church of St. Nazaire is the tomb of Simon de Montfort. Pop. in 1856, 19,915.

CARD PLAYING. Like the game of chess, cards are supposed to be of Asiatic origin, and indeed seem to have been based upon the same warlike associations, some of the figures of chess having appeared also in the cards used in the Orient. In Hindostan cards were called *tach-har-tas*, signifying 4 crowns or 4 kings, the popular name being *taj* or *tas*. The Chinese call their cards *che-pas* or paper tickets; they have 30 cards in a pack, 3 suits of 9 cards each, and 3 single cards which are superior to all the others.—The most ancient form of cards is still preserved in the figures of the cards used in the French game of *tarots*. This name is derived from the Arabic, and the game was originally connected with religious, necromantic, and scientific associations. The ancient terms for cards, as *naypes* in Spain and *naibi* in Italy, are also of Arabic etymology, and signify fortune-telling. In all probability, cards were introduced into Europe by Arabs, Jews, and other oriental races, before the 18th century, the Saracens especially having made the game popular in Spain and Italy, whence the taste for it spread into Germany, France, and England. The first historical evidence of its existence in Germany presents itself before 1275, when a minute in the town hall of Augsburg records the fact that "Rudolph I. amused himself with playing cards and other games." The use of cards in Italy is mentioned as early as 1299. The first authentic record in France occurs in 1393, when in the official accounts of Charles Poupart, treasurer

of the royal household, an item of expenditure appears for *trois jeux de cartes* presented to Charles VI. by Jacquemin Gringonneur, an artist. As early as the 15th century, an active trade in cards sprung up in Germany, and was chiefly carried on at Nuremberg, Augsburg, and Ulm, the demand from France, England, Italy, Spain, and other countries producing great prosperity among the manufacturers. The most eminent manufacturer of cards in France in the 16th century was Jean Volay. In England the manufacture of cards flourished especially under Elizabeth. But no sooner had cards come to be generally used in Europe, than they were prohibited by several governments, partly from moral considerations, the first games, as *Landtsknecht* in Germany, *lansquenet* and *piquet* in France, being games of chance; partly from considerations of political economy, as in England, where the importation of foreign cards was considered injurious to the prosperity of home manufacturers. The prohibition, however, only tended to increase the taste for cards. In England, under Richard III. and Henry VII., card playing grew in favor. The latter monarch was very fond of the game, and his daughter Margaret was found playing cards by James IV. of Scotland, when he came to woo her. The popularity which cards gradually obtained in England may be inferred from the fact that political pamphlets under the name of "Bloody Games of Cards," and kindred titles, appeared at the commencement of the civil war against Charles I. One of the most striking publications of this kind was one in 1660 on the royal game of ombre. In "Pepys's Diary," under the date of Feb. 17, 1667, it is stated that on Sabbath evenings he found "the Queene, the Duchesse of York, and another or two, at cards, with the rooms full of ladies and great men."—"The marks upon the suits of cards are supposed to have been originally intended for a symbolical representation of the 4 different classes of society, hearts representing, according to this supposition, the clergy, spades the nobility (It. *spada*, a sword), clubs the serfs, and diamonds the citizens. The figures originated with military and historical associations. So we find the kings in the first French cards representing the monarchies of the Jews, Greeks, Romans, and French. The queens, knaves, the ace, and the number of the cards, were based upon similar ideas; but many changes and modifications have taken place at various periods, according to the customs and tastes of different countries. Breitkopf's *Versuch des Ursprungs der Spielkarten* is one of the most profound dissertations on the subject. Singer's "Researches into the History of Playing Cards" was published in London in 1816; Leber's *Etudes historiques sur les cartes à jouer*, in Paris in 1842; and Chatto's "Facts and Speculations on the Origin and History of Playing Cards," in London in 1848.

CARDAMOM, a name rather vaguely applied in commerce to the aromatic seeds of various East India plants, of the natural order

*singiberacea*. The *amomum* of Dioscorides, and *amomi uva* of Pliny is probably the round cardamom of Sumatra, Java, &c., the fruit of *amomum cardamomum* (Willdenow's Linn.). The variety from Madagascar is known as the great cardamom, but other varieties from Java and Ceylon are also called by the same name by some authorities. The cardamom of the pharmacopœia, and the best known in this country, is that from Malabar. It is the product of the *renealmia cardamomum* of Roscoe, a perennial plant with a tuberous root, growing wild in the mountains, and cultivated by the natives. The seeds are exported in their capsules, which are also aromatic, but are rejected in the use of the article for medicine. Cardamom seeds are valued for their aromatic and pungent qualities, and are much used to flavor various medicines and cordials. The natives of the East use them as a condiment. One variety, known as grains of paradise, Guinea grains, and Malagueta pepper, is imported in seeds from Guinea, and also from Demerara, where the negroes have introduced and now cultivate it. The plant is probably the *amomum Melegueta* of Roscoe, though one of the varieties found in the English markets is from the *A. grana paradisi* of Sir J. E. Smith. The negroes use the seeds as seasoning for food, and in Africa they are highly esteemed among spices. Their flavor is highly pungent and peppery. In England they find an extensive use for giving a factitious strength to adulterated gin and other liquors, and frequently appear as one of the ingredients of the so-called "gin flavorings." (See GIN.) They are also administered as medicine in veterinary practice.

CARDAN, GIBOLMO, an Italian savant and physician, the illegitimate son of a jurist and physician of Milan, born at Pavia, Sept. 24, 1501, died in Rome, Sept. 21, 1576. When young he joined the order of St. Francis, but abandoned it afterward. Devoting himself to the study of medicine and philosophy, he obtained his degree of M.D. in 1525, practised his profession for some time, and successively officiated as professor of mathematics and medicine at Pavia and Bologna. He published a treatise on mathematics, *Art magna*, which gained for him a high reputation in that branch of science; while in the medical profession he ranked equally high, the king of Denmark offering him, but in vain, a professorship. While on a visit to Scotland, he was hailed as a great physician, and said to have effected some famous cures. Pecuniary embarrassments driving him away from Bologna, he repaired in 1570 to Rome, where he spent the rest of his life, honored with the friendship of Gregory XIII., who settled a pension on him, and caused him to be admitted a member of the college of physicians. He was noted as much for his eccentricities as for his abilities, and his writings as well as his life present a curious combination of industry and absurdity. His most famous treatise, *De Subtilitate*, is divided into 21 books, which are taken up by the various branches of scientific, philosophical,

and metaphysical speculations; the 16th book, in which he treats of science in general, and in which he advocates the propriety of beginning the education of the young by teaching them geometry, being the most sensible. A Lyons edition of his works is considered the most complete (10 vols. fol., 1668).

CARDENAS, one of the administrative divisions of the W. department of the Spanish West Indian colony of Cuba. Area 106 sq. leagues. Pop. in 1853, 86,861, including 27,521 whites, 3,824 free colored, and 55,016 slaves.—CARDENAS, the chief town of the division, situated on the N. coast of the island, pop. in 1858, 6,178, is 120 m. E. by S. of Havana, is connected by railway and telegraph with Havana and Matanzas, and is, after Havana, Matanzas, and Santiago de Cuba, the most important commercial emporium of Cuba, the custom-house receipts for 1854 having been \$409,000. The harbor of Cardenas has 5 to 6 fathoms of water and good anchorage. At its entrance is a fixed light, 49 feet high. The filibuster Lopez effected a landing here in 1850, and toward the end of 1852 a fire desolated the town, burning the theatre, the custom-house, and the powder-magazine, and injuring property to the extent of \$1,000,000.

CARDI, Lunovico, called also OIGOLI, a Florentine painter, born at the castle of Oigoli, in Tuscany, in 1559, died in 1618. He was the pupil of Santo di Titi, but was indebted for his success to a careful study of the works of Correggio. His "St. Peter healing the Lame" has been regarded as inferior only to the "Transfiguration" of Raphael. His other most esteemed pictures are "St. Jerome" and the "Conversion of St. Paul" at Rome, the "Stoning of St. Stephen," the "Trinity," "Mary Magdalene," and the "Ecce Homo," at Florence. He enjoyed a considerable reputation also as an architect, and designed the fine Renuccini palace at Florence, as well as many palaces and public edifices there and at Rome; he excelled also in some degree as engraver, and published a treatise on perspective.

CARDIA, a town of the Thracian Oheronesus, at the head of the Melanian gulf, which Lysimachus destroyed when he founded Lysimachia. It was rebuilt in the Roman times, and on the site of the ancient city a village now stands which bears the name of Hexamili.

CARDIFF, the county town of Glamorgan-shire, Wales, on the river Taff, 170 m. from London by railway; pop. in 1851, 18,851; returns one member to parliament. Until within the last 30 years Cardiff was a mere village; but the construction of a fine dock by the marquis of Bute, a large local proprietor, and the consequent trade from the collieries of South Wales, have suddenly converted it to an important commercial town. It is now the principal shipping port of the Welsh steam coal, beside iron, slates, and other local products. The entrances in 1852 consisted of 475 foreign vessels, tonnage 81,275; 1,816 coasting vessels, tonnage 105,257. The clearances were 1,711 foreign vessels, tonnage 844,811; 6,212 coasting ves-

sels, tonnage 481,696. The greater part of the town is of course modern, and consists of good buildings, including 2 fine churches and several other places of worship. There are 5 schools, an infirmary hospital, and a union workhouse.

CARDIGAN, a seaport and borough of Wales, 289 m. from London; pop. in 1851, 3,876. The town carries on a small shipping trade along the coast, exporting agricultural produce and slates, and importing coal, limestone, and timber. The entrances of coasting vessels in 1852 were 587, tonnage 13,788; the clearances 50, tonnage 1,519. The foreign shipping is inconsiderable. There is an ancient castle in the town, the foundation of which is ascribed to Gilbert de Clare, toward the end of the 12th century.

CARDIGAN, JAMES THOMAS BRUDENELL, earl of, a British general of cavalry, born at Hambleton Oct. 16, 1797, was educated at Christ church, Oxford, and was gazetted May 6, 1824, as cornet in the 8th royal Irish hussars, under the courtesy title of Lord Brudenell. His family influence and wealth in England procured for him a rapid promotion, and in a few years he had attained the rank of major. At this time he became notorious for eloping with the wife of Major Johnston, whom he married on June 19, 1826, after the lady had obtained a divorce from her first husband. The union, however, proved unhappy, and eventually terminated in a separation. The death of this lady took place in London, July 15, 1858. Lord Brudenell was next, Dec. 3, 1830, made lieutenant-colonel of the 15th hussars. Lady Augusta Wathen, a lady of high connection, the wife of the major of that regiment, having obstinately refused to visit Lady Brudenell, Lord Brudenell subjected her husband to a series of persecutions which resulted in a court-martial, disclosing on his lordship's side a course of tyranny and espionage, which, notwithstanding his rank and influence, compelled his removal from the regiment and from active service. Indeed, it was only through the interference of William IV. moved by the entreaties of his father, that Lord Brudenell was restored and appointed lieutenant-colonel of the 11th light dragoons, then serving in India. This restoration to his rank was in 1834. Lord Brudenell was a member of the house of commons from the period of his coming of age in 1818, until Aug. 14, 1837, when on the death of his father, he became earl of Cardigan. After his regiment returned from India Lord Cardigan got himself into difficulties with the officers, who, one by one, had to sell out until the feeling of the regiment broke into mutiny in what was known as the "black bottle quarrel." This quarrel arose in 1840, while Lord Cardigan's regiment was stationed at Canterbury. One of his officers, Capt. Reynolds, having caused wine to be placed on the table in a "black bottle," Lord Cardigan accused him of degrading the mess to the level of a pot-house. This led to angry words: Capt. Reynolds was placed under arrest, demanded a court-martial, but this

privilege was withheld from him, and, as the public thought, unjustly. The excitement created by this affair and by his subsequent misunderstanding with another officer also of the name of Reynolds, had hardly subsided, when he fought a duel with Capt. Harvey Tuckett (Sept. 15, 1840), because this officer had censured his conduct in the "Morning Chronicle" newspaper. Capt. Tuckett was wounded, and Lord Cardigan tried before the house of lords, but, although acquitted, public opinion was against him. His reputation, however, as an accomplished cavalry officer, and the satisfaction which the duke of Wellington expressed in 1848, with the efficiency of the 11th hussars' regiment, which was under Lord Cardigan's charge, led to his promotion. On the outbreak of the Crimean war Lord Cardigan was raised to the rank of major-general, and appointed brigadier in command of the light cavalry brigade. This brigade constituted the celebrated "six hundred," whose charge at Balaklava will long be remembered as one of the bravest yet wildest feats, perhaps, ever told of in the history of war. On that occasion (Oct. 25, 1854), Lord Cardigan is said to have received from Lord Lucan, his brother-in-law, an order to capture certain guns from the Russians. A mile and a half had to be traversed, under fire, before the enemy could be met, and the Russian forces stood in formidable array in every direction. The enterprise seemed hopeless. Cardigan, however, led on the charge, and actually took the guns, his men cutting their way through the infantry support and through the cavalry, and then back again, under the play of the Russian batteries, but with fearfully diminished numbers, the survivors not exceeding 150. As the hero of this daring exploit, Lord Cardigan was received with great enthusiasm on his return to England, and appointed inspector-general of the cavalry. The charges, however, subsequently alleged by the Crimean commissioners, tended to reduce the high estimate placed upon his services.—In appearance Lord Cardigan is the beau-ideal of a light dragoon. Though 61, he carries his years with an arrogant air of juvenility. His frame, though slight, is well proportioned and knit, and he is gay and dauntless in bearing.

**CARDIGANSHIRE**, a county of South Wales; area, 698 sq. m., or 448,887 acres; pop. in 1861, 70,796. The county is mountainous, except in the N. E. near the sea, where it is flat. The rivers are small, and there are several small lakes. Slate is the prevailing geological character of the county. Veins of copper, lead, and zinc are found. Some domestic manufactures of woollen are carried on; oats, butter, and slates are exported. Remains of castles and religious houses are frequent, as are druidical remains and Roman encampments.

**CARDINAL** (It. *incardinare*, used synonymously with *intitolare*, to commission), originally, any clergyman bearing an official appointment in a principal church. By degrees, however, the

title became the exclusive designation of the principal clergy of the Roman church, who, as the natural counsellors of the pope, acquired an influence and consideration of a superior kind. Thus, in process of time, an ecclesiastical senate was formed to advise and assist the sovereign pontiff in the government of the church; and the constitution of this body was continually perfected until it was ultimately fixed in its present form by Pope Sixtus V. The dignity of cardinal is the highest in the Latin church, after that of pope, who is elected by them alone. Cardinals have also the rank of secular princes, being classed with electors, and next after kings. Their insignia (beside those worn by bishops, which all cardinals, even those who are not in sacred orders, are entitled to use) are a purple mantle, a scarlet hat, and a ring of sapphire set in gold. They are divided into 8 classes, cardinal bishops, cardinal priests, and cardinal deacons; and the maximum number of these 8 classes is respectively 6, 50, and 14. In the 1st class belong the bishops of the 6 suffragan sees of the Roman province, viz., Ostia, Porto, Albano, Tusculum, Sabina, and Praeneste. Their title arose from the circumstance that they were obliged to officiate pontifically on certain days in the greater basilicas of Rome, and were inaugurated or incardinated (*incardinati*) into these functions, and hence ranked as the chief of the cardinals, who were, as stated above, the clergy of these principal churches. The cardinal priests were originally the archpriests who presided over the clergy attached to the principal churches, of which there were already 25 at the close of the 5th century. The cardinal deacons sprung from the regionary deacons, of whom there were originally 7 and afterward 14, each one having charge over the poor in a certain district of the city. In modern times the cardinal priests are very frequently archbishops and bishops. Each one, however, derives his title from a particular church, and in that church he has special jurisdiction. The cardinal deacons may be priests, deacons, or subdeacons, or even inferior clerks. They are generally men who have devoted their lives to the study of law, diplomacy, and statesmanship, and are employed in the temporal affairs of the Roman court. Every cardinal, whatever order he may have received, exercises quasi-episcopal jurisdiction in his church, gives solemn benediction, and issues dispensations. Those who are priests can give the tonsure and minor orders. They take precedence of all prelates, even patriarchs, and have a decisive voice in general councils. The appointment of a cardinal rests exclusively with the pope. The number is never quite filled, and there are always some reserved *in petto*, to be announced when a death occurs or any other suitable opportunity presents itself. It is customary to appoint a few cardinals recommended by the principal Catholic sovereigns, who are called crown cardinals. The constitutions of Sixtus V. and the decrees of the council of Trent direct that the

cardinals should be selected, as far as possible, from all nations. The reasons of this direction are evident; for, as the pope exercises supreme authority over so many national churches in different parts of the world, he needs the advice of wise and learned men from all civilized countries in order to give a truly catholic character to his administration.

**CARDINAL POINTS** of the compass, the points exactly N., E., S., and W.

**CARDINAL VIRTUES**, those moral virtues which are regarded as being the basis of, and involved in greater or less degree in, all right action; so named from *cardo*, a hinge, as denoting the fundamental point on which all things turn. Of these the ancients reckoned 4, representing the 4 principal divisions of the circle which a hinge describes. These 4 were justice, prudence, temperance, and fortitude.

**CARDOZO**, ISAAC N., an American journalist and political economist, born at Savannah, Ga., June 17, 1786. About 1794 his family removed to Charleston, S. C., where he received a plain English education, and from his 12th year was put to mechanical and mercantile pursuits. In 1816 he became editor of the "Southern Patriot" newspaper in Charleston, of which, in 1823, he became sole proprietor. He had long studied the principles of trade, commerce, and finance, and his purpose from the first was to render his journal especially an organ of free trade doctrines. Having a constant view to those commercial questions in which the interests of the southern states were involved, the commercial relations of the U. S. with the British West India islands, in their then restricted condition, engaged a large share of his attention. The removal of those restrictions was an object of constant solicitude with Mr. Monroe's administration. To force a relaxation by the British government, congress in 1818 and 1820 adopted counteracting regulations. These, whatever their effect on the British, were found to be oppressive on southern commerce. In 1822 various seaport towns of the South, such as Norfolk and Baltimore, petitioned congress for their removal. The city of Charleston was so far inclined to second the movement that a large public meeting was held, and a memorial was drafted for its acceptance. Mr. Cardozo regarded the case as an exceptional one, and opposed the memorial. He argued against unlimited freedom of intercourse where reciprocity was denied, and at an adjourned meeting of the citizens the memorial was rejected, leaving the whole matter as before, in the hands of congress and the executive. The result which was aimed at in the countervailing resolutions of congress was soon seen in the partial removal of the British restrictions. When this was done, President Monroe opened the ports of the United States to the vessels of the British West Indies. Mr. Cardozo took an active part in the establishment, in 1823, of the Charleston chamber of commerce. The tariff of 1824 met with

little or no united opposition from the south. When, in 1827, an increase of protection was agitated, it resulted in the act of 1828. Mr. C. brought the subject before the chamber, and was one of a committee appointed to draft a memorial to congress, which was unanimously adopted by the citizens of Charleston in a public meeting. The arguments on the subject, however new, rapidly made their way into the public mind of that state, and constituted the chief political capital of the press and parties. The agitation ripened into nullification, the controversies upon which began in 1828. Mr. Cardozo continued his opposition to the protective tariff, still maintained his free trade argument, but declined to adopt the extreme practical results to which nullification was expected to conduct. The advocates of nullification succeeded in the state, but Mr. C. forfeited none of the public esteem in consequence of his course. He continued to conduct the "Southern Patriot," keeping it steadily the exponent of the commercial principles of which he had been so long the advocate, until 1845, when he sold the paper, and soon after, in the same year, established the "Evening News," another daily newspaper, with which he has ever since been associated as commercial editor. His reputation as a political economist has become fixed in the esteem of the southern people, though few know how extensively he has written on all the subjects we have indicated. He has contributed to the "Southern Quarterly Review" and other periodicals, and in 1826 he published "Notes on Political Economy," 1 vol. 8vo.

**CARDROSS**, a Scotch village, on the Clyde, in the county of Dumbarton, pop. 4,400, with bleacheries and cotton manufactories; celebrated for its Castle hill, the name given to the site where once stood the castle which Robert Bruce built, and where he died, June 7, 1329.

**CARDS**, in cloth manufacture, are combs of a peculiar construction, which serve to disengage the fibres of an entangled mass and lay them parallel. Every fibre on the card is doubled up, and they are afterward extended by an operation called drawing and doubling. Cards are made by inserting in a piece of leather fine wires projecting about  $\frac{1}{4}$  inch from the leather, and all slightly bent the same way. These small hooks are prevented from turning by being made in pairs. Two of them are made of a piece of wire bent like the 8 sides of a square; this is inserted through 2 holes in the leather, and the 2 projecting ends are bent in the same direction. The leather, bristling with hooks, is attached to a flat or cylindrical surface. A card is an instrument in which 2 such surfaces are opposed, and made to move at a very small distance from each other; the cotton or wool to be disentangled is placed between them. The cards opposed to each other are placed in different positions according to the result to be obtained. At first the hooks are placed in op-



posite directions, so that at each stroke some of the fibres of the tuft are hooked on one card and some on the other; this is called the tearing position. After all the fibres are hooked on, one of the cards is reversed, and at the next stroke the card which moves in the direction pointed out by its own hooks strips from the other all the fibres; this is called the stripping position. Flat cards have been used by hand in the manner just described. Cylinder cards and the carding machine were invented in the 18th century by Lewis Paul of Northampton, England, and were much improved by Sir Richard Arkwright. The cotton or wool is in general passed through 2 carding machines before it is ready for the next operation; these are called the breaker and the finisher, and the only difference between them is that the teeth of the last machine are finer than those of the other. The principal parts of the most improved carding machine of our time are: 1. A main drum, 85 inches diameter, with a circumference velocity of 20 feet per second; it is covered with strips of cards parallel to the axis, laid on at a small distance from each other, and moves in the direction pointed out by the teeth. 2. Top cards, or narrow, flat cards, which are stationary above the main drum, and parallel to its axis; they rest by their ends on the frame of the machine, are tangential to the drum, and their distance from it is nicely regulated by screws. The teeth of the top cards and of the drum are in the tearing position. 3. Two feed-rollers,  $1\frac{1}{2}$  inch diameter, velocity  $2\frac{1}{2}$  inches per minute; they are on a level with the axis of the drum, and on the side which moves toward the top cards. 4. A large runner or cylinder,  $6\frac{1}{2}$  inches diameter, 14 feet velocity per second; it is tangential and parallel to the drum, and is situated between the feed-rollers and the top cards; the teeth are in the tearing position. The drum moving from right to left, the large runner moves from left to right. 5. A small runner,  $8\frac{1}{2}$  inches diameter, 7 feet velocity; it is tangential at the same time to the drum and to the large runner, and stands between this and the feed-rollers; it moves from left to right, strips the large runner at a velocity of  $14+7=21$  feet, and is stripped by the drum at a velocity of  $20-7=13$  feet. 6. A doffer cylinder, 14 inches diameter, 27 feet velocity; it is parallel to the drum, and turns from left to right; its teeth are in the tearing position; it stands in front of the top cards. 7. A doffer knife, like an ordinary comb; it has an up and down motion in contact with the doffer, which it strips of all its fibres, thus forming what is called a fleece. 8. The funnel through which the fleece passes, and where it is contracted into a ribbon. 9. Two pairs of drawing rollers, and 2 delivery rollers. The width of the machine, or length of the various cylinders, is 3 feet. The strips of cards on the runners and doffer are placed spirally. Sometimes small card cylinders, called squirrels, are substituted for the top cards.

This machine operates as follows: The wool or cotton to be carded, after being arranged in the shape of a sheet in another machine, is engaged between the feed-rollers. The fibres are taken off by the drum and carried to the large runner, which takes off the loose fibres, and is stripped of them by the small roller, which returns them to the drum. The drum carries them anew to the large runner, but they are hooked more firmly and move onward to the top cards; some of them remain there, the others are completely extended and reach the doffer, which takes off a portion of them; these are stripped from it by the doffer knife and form the fleece; the others are carried round again to the runners and top cards. At each passage some are taken off. From time to time the top cards and cylinders are cleaned of the fibres accumulated in their teeth. The machine cards 2 lbs. 5 oz. of cotton per hour.—THE MACHINE FOR MAKING CARDS was the invention of Amos Whittimore, of Cambridge, Mass., for which he took a patent in 1797. An English patent was issued in 1811 to J. O. Dyer. A fillet of leather is prepared of equal thickness throughout by drawing it between a cylinder and a scraper, which takes off all inequalities. One end of the fillet is then placed between 2 feed-cylinders, and is guided laterally by rollers. These are acted upon at intervals, and each time they move they carry the fillet sideways the distance between 2 hooks. When it is necessary to place the hooks in oblique lines, the motion described is combined with a motion of the feed-rollers. After each motion of the fillet of leather, a fork brought down at the proper angle pierces 2 holes in the leather; a piece of a hard-drawn steel wire is fed in; a small block of steel descending upon it holds it firmly; the wire is cut off; 2 sliding pieces of metal bend it up against the sides of the block, and the points are pressed into the holes in the leather. The blocks and other parts spoken of recede out of the way, and other parts come forward to drive the staple in and bend it to the required angle. All these operations are effected by means of rotary cams acting upon the ends of levers or of rods, some by their periphery, some by their sides, as is usual in machines for manufacturing small objects which require to be submitted to numerous and complex motions.—Nearly 100 patents have been granted by the United States for improvements in cards, carding machines, and card-making. About 5 new ones are now issued every year.

**CARDS, MANUFACTURE OF.** Playing and address cards are prepared from card-boards, made by pasting a sheet of cartridge paper between 2 sheets of white or colored paper; or for ornamented backs, sheets may be printed with the intended design. Cardboards of extra thickness may have 2 or more sheets of cartridge paper interposed. As ordinarily made, the first process, called mingling, is arranging a sheet of cartridge paper between each pair of

sheets in a ream of white demy paper. The pile thus made is called a head. Placed on a table at the left hand of the paster, he draws down the top sheet, and brushes it over with paste; then the cartridge paper, drawn down on the pasted surface, is treated in the same way, and its surface is immediately covered with 2 sheets drawn down at once upon it. The upper one is pasted for the next cartridge paper, and so on till the head is again made up. It is then subjected to the action of a powerful hydraulic press, by which the water is expelled from the sheets. Removed from this, each outside pair is successively taken off, one board at each end of a copper wire, and suspended on lines 24 hours in a heated room to dry. The boards are then passed between stiff cylinder brushes, by which they are well rubbed and partially polished. They may next be varnished on the side to be the backs, thus making them water-proof and less likely to be soiled. They are then rolled between a warm iron and a paper roller, as in the process of calendering, next between 2 polished iron rollers, next with smooth sheets of copper interposed between the cardboards, and finally they are subjected to a pressure of 800 tons. The boards are thus made straight and even, and receive a finely polished glazed surface. If not intended for playing cards, they may now be cut into the required sizes of address cards. To be enamelled, they receive an application of china white, or silver white, (a very pure variety of white lead,) which is first mixed with water containing some fine size, made from parchment-cuttings boiled down. This application, being smoothed over with a badger's hair brush, is first dried, then rubbed over with flannel dipped in powdered talc, and finally polished with a close-set brush.—The old way of painting playing cards was by the use of stencil plates, with openings corresponding to the spots, each plate comprising many cards, so as to cover a cardboard. Through these openings the color was introduced with a brush. The court or face cards required a stencil for each color, one being applied and then another, the open spaces in each being where the color used with it belonged. The operation somewhat resembles the printing of colors on cloth. (See CALICO.) A cardboard, when thus painted, was cut up into its separate cards. The English manufacturers receive the print of the ace of spades from the stamp office, this being the duty card, costing the manufacturers 1s. sterling. But if the cards are for exportation, no duty is required, and the duty card in this case bears a printed notice, forbidding its use in Great Britain and Ireland, under a penalty of £20. Printing has succeeded to the use of the stencil, and the process in use for applying different colors, is by blocks, essentially the same as those of the calico printer. The colors are carefully prepared of the best materials—French lampblack for the black, and Chinese vermilion for the red—each ground in oil.—Of the 4 prin-

cipal card manufactories in the United States, 1 is in Philadelphia and 3 are in New York. Mr. Levi, in the latter city, has the largest establishment. He employs 100 hands, has a 25 horsepower steam engine, and all together has \$40,000 worth of machinery. Every week 250 gross of packs are turned out of this factory. The largest demand for cards is in the southwest, each pack is used only once or twice, and then thrown away; a great number are used once on board of our western steamboats, and then thrown away. See CARD PLAYING.

CARDUCCIO, BARTOLOMEO, an Italian painter, born at Florence about 1560, died in Madrid in 1610. He painted the frescoes in the palace cloisters and the ceiling of the library at the Escorial. His greatest work is the "Descent from the Cross," in the church of San Felipe, in Madrid. He also wrote a book on painting, published at Madrid, 1688.

CARDUCHI, ancient warlike tribes, the ancestors of the present Koords, who inhabited the mountainous regions between Mesopotamia and modern Persia, now named Koordistan. They were famous for their skill in archery, and baffled all the attempts of Persian monarchs to subdue them. The retreat of the 10,000 Greeks, after the battle of Cunaxa, lay through the country of the Carduchi, and was harassed by constant attacks from the natives. Xenophon gives a complete account of their habits and modes of life in his history of this retreat.

CAREER, in horsemanship, both the ground that is proper for the manège and a course, and the race of a horse which does not go beyond 200 paces. The original use of this exercise was for purposes of arms, in the tilt yard. A horse, to be perfect in his career, should spring at once to speed, increase his momentum at every stride, and be at his utmost at the moment of reaching the extremity of the distance.—In arms, career signifies the course which is run, in the tilt or tourney, by two knights, from the place at which they sit on their horses, facing one another, with their visors closed, their shields hanging about their necks, and their lances in rest, awaiting the signal given by the words *Laissez aller*, "Let them go," and the blast of trumpets, to that where they encounter in the middle of the lists. The great merit of the career, in the horse, is to spring at once, at the sound of the trumpet, before feeling the spur, to his full speed, and to increase or maintain the impetus to the very moment of the shock; for, in exact proportion to his delivering his maximum of weight and speed against the horse opposed to him, or relaxing it, and meeting his adversary panting and blown, will be the effect of the charge. The beauty of the career, in the rider, is to deliver the point of the lance horizontally, or, as it is technically called, fairly, against the visor or shield of his antagonist, so as either to unhorse him, or to break the spear to splinters, at the same time sitting so

firmly himself as to resist the blow of the opponent's lance, and with so good a hand as to prevent the charger he rides from swerving or going down in the shock. To unhorse the adversary, himself unshaken in his seat, is the crowning glory of the career. To break the lance crosswise on his person, failing to strike him with the point, or to strike him with the point on the leg, thigh, right arm, or anywhere except on the shield or crest, is the greatest fault. To be unhorsed, or to lose a stirrup, or to let fall the lance, was to lose the career.

CARÈME, LOUIS ANTOINE, a French cook, born June 8, 1784, at Paris, died Jan. 12, 1833. His family was so poor, that when a mere boy, he was sent out by his father to try his luck in the great metropolis. He found admittance to a low cook-shop, where he worked for his living. At 16 he became assistant cook at a fashionable eating-house, and, through his natural taste, made rapid progress in his profession, which he studied scientifically. In 1804 he had reached such a degree of proficiency, that he entered Prince Talleyrand's kitchen, where he accomplished wonders which gained him an unparalleled reputation. In 1815 he consented to serve the prince regent at London, but, unable to reconcile himself to the climate of England, he left the prince at the end of 2 years. Russia, whither he was called by Emperor Alexander, was equally uncongenial; neither could he remain permanently in Vienna, where he prepared several banquets for the emperor. He also evinced his talents at the congresses of Aix la Chapelle, Laybach, and Verona, remained some time at the court of Wurtemberg, and finally returned to France, where his services were secured by Baron James Rothschild. Carème was indeed an artist in his line, always eager for progress and improvement; he peculiarly excelled in pastry, and the general arrangement of serving the table. Most of his earnings were devoted to culinary researches, and to publications expounding the mysteries of a calling which he raised to the dignity of an art. His most important book is *Le pâtissier pittoresque*, illustrated by 128 plates, but the most useful are *Le cuisinier*, and *Le pâtissier Parisien*. His special erudition is evinced in *Le maître d'hôtel Français*, a comparison between ancient and modern cooking.

CARENNAO, a French commune and village, in the department of Lot, 85 m. N. N. E. from Cahors; pop. 1,122. It has an ancient abbey, of which Fénelon was the head when he was made archbishop of Cambrai, and a tower in which he composed a portion of his works. Freestone is wrought in its environs.

CAREW, THOMAS, an English poet, born in Gloucestershire about 1589, died 1639. He studied at Oxford, and afterward became gentleman of the privy chamber to Charles I. He enjoyed the friendship of Ben Jonson and other poets of the day, and at court he was much esteemed for the vivacity of his wit and the elegance of his manners. He wrote sonnets and

amorous poetry, and a masque set to music by Henry Lawes, called *Calum Britannicum*. It was performed by the king and nobles, at Whitehall, in 1633, on Shrove Tuesday.

CAREY, ALICE, an American authoress, born in 1822 at Mount Healthy, near Cincinnati. She had but the slight advantages of education furnished by an occasional attendance at a country school. She first attracted attention by some sketches of rural life, published in the "National Era," under the signature of Patty Lee, and has since been a frequent contributor to periodicals. In 1850 a volume of poems, the joint work of herself and her sister Phoebe, appeared in Philadelphia. This was followed in 1851 by her romantic poem of "Hualco," by "Lyra and other Poems" the next year, and by a new collection of poems in 1855. During the same period, she has published, under the title of "Clover-nook," 3 series of sketches of western life and scenery, and also 3 novels, the first of which, entitled "Hagar, a Story of To-day," appeared in 1858, and was quickly succeeded by "Married, not Mated," and "Hollywood."—Phoebe, an American poetess, the younger sister of the preceding, born near Cincinnati, in Ohio. She has contributed frequently to periodicals, and also published in 1854 a volume of "Poems and Parodies."

CAREY, GEORGE SAVILLE, an English dramatic poet, born in 1745, died in 1807. He was first intended for a printer, but became an actor, and spent 40 years in composing and singing popular and patriotic songs. He was the author of certain farces by which he procured a precarious subsistence.

CAREY, HENRY, a poet and musician, was a natural son of George Saville, marquis of Halifax. "God save the King" has been attributed to him, and the ballad of "Sally in our Alley" is his. The various talents of this gentleman did not procure him a comfortable subsistence, and, in a fit of desperation, he killed himself in 1748.

CAREY, HENRY CHARLES, an American political economist, a son of Mathew Carey, born in Philadelphia, Dec. 15, 1798, was educated as a bookseller, entering his father's store at the early age of 8, and remained there, mingling his elementary studies in literature with business, until his majority, in 1814, when he became a partner in the firm. This association continued till his father retired in 1831. He then became the leading partner in the firm of Carey and Lea, and subsequently in that of Carey, Lea, and Carey, in their time the largest publishing house in the country. In 1824 he established the system of trade sales, now the great medium of exchange between American booksellers. In 1835, after an eminently successful career, he withdrew from this business, to employ his large capital in industrial enterprises. From an early period a careful observer of public affairs, and especially of whatever concerned the industrial prosperity and progress of the country, his interest in subjects of political

economy now found a larger field in which his own practical experience and theoretic studies could mutually guide each other. Originally a zealous partisan of the idea that the principles of absolute free trade ought to be immediately and unconditionally applied in the foreign commerce of the United States, he presently came to the conviction that real free trade with foreign countries was impossible in the present state of American industry, and that a period of protection, by means of imposts on the importation of foreign manufactures, must first be gone through with. In this view, free trade is the ideal toward which we ought to tend, and protection the indispensable means of arriving at it. Thus Mr. Carey is both a free trader and a protectionist. His doctrine on this subject is, however, but incidental to his general system of political economy, or, as he prefers to call it in his latest publication, social science. His views will be more fully explained in the article *POLITICAL ECONOMY*; their central principles are, briefly, that in the weakness of savage isolation man is subject to nature, and that his moral and social progress are dependent on his subjecting nature to himself; that the land, worthless in itself, gains all its value from human labor; that the primitive man, without tools and without science, of necessity begins his cultivation upon the light, salubrious, and easy soils of sandy elevations, and gradually advances to the subjugation of more fertile and difficult regions; that the real interests of classes and individuals are essentially harmonious; that there is, in the normal condition of things, a constant tendency to increase in the wages of labor, and to diminution in the rate, though to increase in the aggregate, of the profits of capital; and that the well-being and advancement of society correspond to the degrees of association and of liberty which exist in it. His theory is thus, in some important respects, opposed to the ideas prevailing among the majority of European economists, Bastiat alone, of all prominent European writers on the subject, having defended the theory of general harmony against that of general antagonism.—The first book published by Mr. Carey was his "Essay on the Rate of Wages, with an Examination of the Causes of the Difference of the Condition of the Laboring Population throughout the World" (1835). This work was reproduced and expanded in "The Principles of Political Economy," 8 vols. 8vo (1837, '38, and '40). He next published "The Credit System in France, Great Britain, and the United States" (1838); "Answers to the Questions, What Constitutes Currency? What are the Causes of its Unsteadiness? and What is the Remedy?" a pamphlet (1840); "The Past, the Present, and the Future," 8vo, pp. 550 (1848); "The Harmony of Interests" (1850); "The Slave Trade, Domestic and Foreign: Why it Exists, and How it may be Extinguished;" "Letters on International Copyright" (1858); "Letters to the President on the Foreign and Domestic Policy of

the Union, and its Effects, as exhibited in the Condition of the People and the States" (1858). For several years Mr. Carey also contributed the leading papers in "The Plough, the Loom, and the Anvil," a monthly periodical, some of which were afterward collected in his "Harmony of Interests." Through the whole period of his industrious authorship of books, he has also written much in some of the principal newspapers of the country, on subjects connected with his special study. He has now in course of publication a work entitled "Principles of Social Science," 8 vols. 8vo, of which the 1st and 2d were issued in 1858, and the 8d is to follow early in 1859. The principal of these works have been translated and published in Italian and Swedish.

CAREY, MATHEW, an American publisher and author, born in Dublin, Ireland, Jan. 28, 1760, died in Philadelphia Sept. 16, 1839. His father was a government contractor, who, having amassed a handsome fortune, bestowed upon his 5 sons a liberal education. When Mathew was 15 years of age, being allowed by his father to choose from a list of 25 trades his future occupation, he selected the business of printer and bookseller; and 2 years later began his career as an author by publishing a pamphlet on duelling, followed soon after by an address to the Irish Catholics on their oppression by the penal code, which was so inflammatory that its publication was suppressed, and the author avoided prosecution only by a flight to Paris. He remained there a year, during which he became acquainted with Dr. Franklin, then representing the United States at the court of Versailles, who gave him employment in his private printing office at Passy. After his return to Ireland he edited for a short time the "Freeman's Journal," and in 1783 established a new paper called the "Volunteer's Journal," which soon obtained a very extensive circulation consequent upon its bold and uncompromising advocacy of measures of the opposition, which led soon after to the recognition by Great Britain of the legislative independence of Ireland. One of its attacks on the parliament and ministry was followed in 1784 by an indictment for libel. Carey was arraigned before the house of commons, and by sentence of that body committed to Newgate, where he remained till the adjournment of parliament. Other prosecutions, however, were still hanging over him, and to avoid them he took the advice of his friends and embarked for Philadelphia, where he arrived Nov. 15, 1784. The account of his trial had preceded him, and Lafayette, who had formerly known him in Paris, now assisted him here. He was enabled to start the "Pennsylvania Herald" newspaper in Philadelphia, in about 2 months after his arrival there. This journal was the first in America to give accurate reports of legislative debates, Carey being himself his own reporter. Its spirited conduct otherwise gave it a high reputation, but also involved its editor in a personal controversy. The result was that Carey fought a duel with

Colonel Osborne, the editor of a rival journal, and received an injury which confined him to his house for more than 16 months. After this he attempted with several partners the publication of the "American Museum," a magazine continued with excellent ability, but little success, for 6 years. In 1791 he married, and began business as a bookseller, on a very humble scale. During the prevalence of the yellow fever, 2 years later, he was a member of the committee of health, and active in his study of the disease and attentions to the sick; and the results of his extensive observation were collected and published in his "History of the Yellow Fever of 1793," which passed through 4 editions. In 1796 he was one of a few citizens who united under the direction of Bishop White in the formation of the first American Sunday-school society. In 1802 he published an edition in quarto of the Bible, and stereotyping not then having come into use, the entire volume was kept in type to supply the demand for reimpressions. At his suggestion also the booksellers and printers of the Union met in New York, to form an association similar to the book fairs of Germany. The plan did not succeed, but it was the germ of the subsequent trade sales. He engaged warmly in the discussions concerning the U. S. bank, writing articles for newspapers, publishing pamphlets of his own composition, and distributing them freely at his own expense. In 1814 appeared his "Olive Branch, or Faults on both sides, Federal and Democratic," designed to harmonize the 2 furiously antagonistic parties of the country, pending the war with Great Britain. It passed through 10 editions, and is yet regarded as high authority in regard to the political history of that period. In 1818 he published his *Vindicia Hibernica*, an examination and refutation of the charges against his countrymen, made by British writers, in reference to the shocking butcheries alleged to have been committed by them in the rebellion of 1641. From this time forward he devoted himself almost exclusively to politico-commercial pursuits, publishing in 1820 the "New Olive Branch," in which he endeavored to show how harmonious were the real interests of the various portions of society; and in 1822, "Essays on Political Economy." This, in turn, was followed by a series of tracts, extending to more than 2,000 pages. The object of all these publications was that of demonstrating the necessity for adopting the protective system, as the only means of promoting the real interests of all classes of the community, whether farmers, traders, or manufacturers. Enthusiastic in the prosecution of any work in which he allowed himself to become engaged, he devoted to the examination of this question all the powers of a vigorous mind, and thus contributed largely toward bringing about the change of public policy manifested in the passage of the tariff acts of 1824 and 1828. Highly public-spirited, he was active in the promotion of all the public works of his city and his state, from the com-

mencement of his American career down to the inauguration of the system of internal improvements, which led to the construction of the Pennsylvania canals. Eminently philanthropic, he was ever active in the promotion of education, and in the formation of associations having for their object the relief of those who were unable to help themselves. Few men have lived more generally respected; few have died more generally regretted by the community in which they had lived and moved.

CAREY, WILLIAM, a Baptist missionary and oriental scholar, born in Paulerspury, Northamptonshire, England, in 1761, died at Serampore, June 9, 1834. He was the founder, in connection with other ministers, of the first Baptist missionary society. In 1793 he devoted himself personally to the missionary work, and embarked, accompanied by his wife and sister, for India. On his arrival, he fixed the scene of his labors at Mudnabatty, but was not permitted by the Indian government to make a permanent establishment there. He next removed to the Danish settlement of Serampore, where he established that large and successful missionary post of his denomination, which has been the theatre not only of his own labors and death, but of the toils of Ward and Marshman, that distinguished oriental scholar, and English translator of Confucius. Carey became an unremitting student of the oriental languages, and lived to see 40 different oriental dialects become the channels of transmission for Christianity to as many tribes. In addition to these labors, he taught in the college of Fort William the Bengalee, Sanscrit, and Mahratta languages, and furnished to the Asiatic society, of which he was a member, many valuable papers on the natural history and botany of India. He brought the Scriptures within the reach of many millions of human beings.

CAREZ, JOSEPH, an eminent French printer, born in 1758 at Toul, died in 1801. He materially contributed to the progress of the art, being considered one of the inventors of the stereotype method. He was a member of the legislative assembly, and subsequently distinguished himself among the volunteers of 1793.

CARGILL, DONALD, a Scotch Presbyterian and Covenanter, and a leader of the Cameronians in and after the Sanguhar declaration, born in the parish of Ratray, Perthshire, about A. D. 1610, executed in Edinburgh, July 27, 1681. He was educated at Aberdeen, entered the Scotch church, and was minister of Barony parish of Glasgow, some time after the division among the clergy in 1650, until the restoration of the English church by Charles II. in 1661, when he refused to accept collation from the archbishop, and to celebrate the king's birthday. He was banished beyond the Tay, but paid no attention to the act. In 1668 he was called before the council, and peremptorily commanded to depart. When indulgence was proclaimed to the Presbyterian ministers, he refused to accept it, and made a stand with

others at Bothwell Bridge against the royal forces. Though severely wounded in that contest, and compelled for a time to flee to Holland, he was again in Scotland in 1680, and with a like-minded enthusiast named Hall, lurked around Queen's Ferry for several months, eluding the vigilance of the authorities, until June 8, when both were arrested, and Hall killed in the affray. On the person of Hall was found the violent paper known in the ecclesiastical history of Scotland as the "Queen's Ferry Covenant." On June 23, with Cameron and others, he made the famous Sanquhar declaration. In the September following, after he had preached to a congregation in the Torwood, between Falkirk and Stirling, from "Is Christ divided," &c., he pronounced excommunication against the king and other state dignitaries, because they had usurped the supremacy of the pure church of Scotland. He was now excommunicated, and a reward set on his head. In May, 1681, he was apprehended at Covington, Lanarkshire, and conveyed to Lanark on horseback with his feet tied under the horse's belly. From Lanark he was taken to Glasgow, and thence to Edinburgh, where he was hanged and beheaded for high treason.

**CARGO** (Welsh *carg*, a load), the goods, merchandise, or other effects which constitute the freight of a ship. The lading within the hold is called the inbound cargo, in distinction from what may be carried on deck. The person employed by merchants to take charge of a lading and to dispose of it is called a supercargo. Cargo is also a Spanish and Italian word.

**CARHILL**, *Étienne de*, a Jesuit missionary among the Huron and Iroquois Indians in Canada. He first visited these tribes in 1668, obtained a complete mastery of their languages, was regarded by the savages both as a saint and man of genius. The date of his death is unknown, but he was still laboring with undiminished activity, though with little success, in 1721, when Charlevoix left Canada.

**CARIA**, an ancient country situated in the S. W. extremity of Asia Minor, separated from Phrygia and Lydia by the mountains Messogis and Cadmus. It was intersected by low mountain chains, which ran far out into the sea, and formed several spacious bays. Its chief river was the Mæander. The valleys between its mountain chains were fertile, producing corn, grapes, oil, and figs. The Carians, according to Herodotus, were not the aboriginal inhabitants of the region, but a branch of the Pelasgic race, originally seated in the islands of the Ægean. When Minos had formed a navy, and subdued the Ægean isles, he transplanted them to Asia Minor. In after times Greek colonies repelled the Carians from their coasts, and built cities on their promontories; while the Lydian kings, Alyattes and Croesus, subdued the inland country. On the overthrow of the Lydian monarchy, the Carians became subject to the Persian yoke, and when the sceptre of the Persian was broken they passed under the sway of Alexan-

der. Later their territory was successively annexed to the kingdom of Egypt and the kingdom of Syria. After the Romans had vanquished Antiochus, they gave Caria to the Rhodians and Attalus in reward of their fidelity and services as allies; and on the conclusion of the Mithridatic war, they ultimately annexed it to their proconsular province of Asia. The considerable cities of the country—Halicarnassus, Onidus, and Miletus—were the work of Greeks, not of Carians. The Carians had the same religion as the Lydians and Mysians. Their language was of the Lydian stock, and accounted barbarous by the Greeks of historic times.

**CARLACO**, the largest of the Grenadine group of the Windward islands, being about 21 m. in circumference, situated in lat. 12° 30' N., long. 62° 30' W., between St. Vincent and Grenada, possessing 2 bays on the N. side, and a town named Hillsborough.

**CARIBBEAN SEA**, that portion of the Atlantic lying between Cuba, St. Domingo, and Porto Rico on the N., Venezuela and New Granada on the S., the Lesser Antilles on the E., and Guatemala on the W., and communicating with the gulf of Mexico through a channel about 120 m. wide, extending from the W. point of Cuba to the E. point of Yucatan.

**CARIBBEE ISLANDS**. See **ANTILLES**.

**CARIBOU** (*tarandus rangifer*, or *cervus tarandus*), the American reindeer. Of this animal several varieties have lately been recognized. Concerning the reindeer Dr. J. E. Gray observes that it varies exceedingly in size. In the British museum there are specimens varying from 8 feet 5 inches to 4 feet 2 inches at the withers; but that distinction is very trifling in comparison to what really exists. Richardson observes that there are 2 well-marked permanent varieties of caribou that inhabit the fur countries; one of them, the woodland caribou, confined to the woody and more southern district, and the other, the barren ground caribou, retiring to the woods only in the winter, but passing the summer on the coast of the Arctic ocean, or on the barren grounds so often mentioned in his work. The large Siberian variety is ridden on by the Tungusians, and they also use them for draught, as the Laplanders do the smaller variety. There is a large variety in Newfoundland, and throughout the British provinces of Nova Scotia and New Brunswick, which have extraordinarily large and heavy horns. It is observed by Dr. Gray, quoted above, that the horns of the Newfoundland variety, some of which are preserved in the British museum, greatly resemble those of the Siberian animal; but Pallas observes that the American species differ from the former in the structure of the hoof, and are absolutely American animals. The tame reindeer of the Laplanders is, according to Hoffberg, at the end of his back an ell and a half high, and his length, from horns to tail, is 2 ells, while from the navel to the backbone he measures  $\frac{3}{4}$  of an ell. If these ells are to be understood

as measures of an English yard, the estimate is immensely exaggerated, since the animals in the English zoological institution, and elsewhere exhibited, do not approach that size, which is fully equal to that of the great American deer, called elk in the west, the wapiti of the Indians; while the true reindeer of domestication does not exceed the English red deer, if it equals it, in size. On casting his coat, the hair of the reindeer is brownish yellow, but, as the dog days approach, it becomes whiter, until it is at last almost entirely white; this, it must be observed, is spoken of the domesticated animal. Round the eye the color is always black. The longest hair is under the neck. The mouth, tail, and parts near the latter, are white, and the feet, at the insertion of the hoof, are surrounded with a white ring. The hair of the body is so thick that the skin cannot be seen when it is put aside, for it stands erect, as in other animals of the same genus, but is much thicker. When the hair is cast, it does not come away with the root, but breaks at the base. The horns are cylindrical, with a short branch behind, compressed at the top, and palmated with many segments, beginning to curve back in the middle, and are an ell and a quarter long. A single branch sometimes, but seldom two, springs from each horn in front, very near the base, frequently equalling the length of the head, compressed at the top and branched. The distance between the tips equals the length. This description, both of the horns and colors, differs in every respect from the wild caribou of North America. The color of that animal is, in the summer, a rich, glossy, reddish brown, becoming more grizzly, especially about the head, neck, and belly, toward the winter; but it never becomes any thing approaching to white. The antlers of the woodland caribou, on rising from the head, curve backward and then forward in a segment of, perhaps, the 6th of a circle for about half their length, or somewhat less; then curve backward again, and again forward, making in the upper sweep nearly a semicircle. They have no backward branch or spur whatever, except one short point close to the tip. The main branch of the antlers is cylindrical, much smoother than those of the red deer or wapiti, and at the upper extremity has 2, 3, or 4, but seldom more than 2, sharp cylindrical spikes. That, however, which constitutes the main difference between the antlers of this animal and of the tame reindeer, or, indeed, of any other of the deer tribe, is this: that while on the upper extremities of the horns are rounded spikes, the lower branches are broad palmated surfaces. The lower of these, or brow antler, which is the principal defensive weapon of the animal, curves downward over the eyes, and is several inches in breadth, with many sharp spurs, or points, round the lower border. The second, or superior process, which shoots horizontally forward from the point where the two curvatures of the main antler meet, is longer than

the lower or brow antler, and looks as if it were more so than it really is, from the direct line in which it projects, instead of being deflected downward. The forward points of the brow antler, the sur-antler, and the upper tips or extremities of the whole, are as nearly as possible in a right line. The measurement of a medium-sized set of antlers, from Newfoundland, in the possession of the writer, is as follows: extreme width from tip to tip, 1 foot 4½ inches; length of the exterior curvature, from root to tip, 2 feet 3½ inches; direct height 23 inches; girth at the root of the antler 5½ inches; at the insertion of the upper prong 4 inches; length of palmated brow antler 11 inches, breadth 8 inches, processes 7 in number; length of the sur-antler 12 inches, breadth 8 inches, processes 3 in number, very strong and sharp. The prongs of the upper extremity are irregular, one antler having 3, the other 3 points. The caribou has a short tail, like the scut of a hare or rabbit, and entirely different from the long flag of the red deer or wapiti. The hoofs have an immense spread, owing to the extension of the cleft of the hoof through the cornea, and far up the pastern of the animal, which gives it, when running over soft snow, or, what is worse, over a crusted surface, a support almost equal to that of a snow-shoe. The average weight of the woodland caribou is from 250 to 300 lbs., that of the barren grounds caribou from 90 to 180 lbs.; those of Spitzbergen and Melville island do not exceed 125 lbs. The reindeer of Norway and Sweden are diminutive as compared with those of Finland and Lapland, which again yield to those of Spitzbergen, which last are not half the size of the woodland caribou of North America. It will probably appear, on further investigation, that there are at least half a dozen distinct varieties of this curious animal; as it is wholly anomalous that the domesticated species should have fallen off in size, the universal tendency of domestication and culture being to increase the size of all animals, and to produce diversity or variegation of color.—The reindeer of Lapland, in domestication, feeds wholly on a species of lichen, peculiar to the country he inhabits, for which he roots under the snow with his nose, after the fashion of swine. He will eat no dried fodder, unless it be, perhaps, the river horsetail, *equisetum fluviatile*. To the Laplander the reindeer is invaluable, being in fact his ox, his sheep, and his horse, in one animal. He is too valuable to kill, in general, although his meat is delicious; but the milk of the herds is the principal support of the owner and his family; while, as an animal of draught, its speed, endurance, and its particular adaptation to travelling on snow, render it the most valuable, or one might say indispensable, of creatures to men dwelling in the high frozen latitudes. The ordinary weight drawn by this brave little animal is 240 lbs., but he can travel with 300. Their speed would be incredible if it were not attested beyond the possibility of doubt. In

a race of 8 in light sledges, started by Pictet in 1769, when he went north to observe the transit of Venus, the 1st performed 3,089 feet 8  $\frac{22}{100}$  inches in 2 minutes, being at the rate of nearly 19 miles in the hour; the 2d went over the ground in 3 minutes, and the 3d in 3 minutes and 26 seconds. The endurance, however, of the reindeer exceeds its speed, which has been easily outdone by the American trotting horse. It is not unusual, it is credibly recorded, for the reindeer to do journeys of 150 miles in 19 hours; and the portrait of one is preserved in the palace of Drotingholm, in Sweden, which performed 800 miles in 48 hours, conveying an officer with important despatches, and dropped dead when the astonishing feat was accomplished. —To the natives of North America, the reindeer is known only as an animal of chase, but it is a most important one; there is hardly a part of the animal which is not made available to some useful purpose. Clothing made of the skin is, according to Dr. Richardson, so impervious to the cold, that, with the addition of a blanket of the same material, any one so clothed may bivouac on the snow with safety, in the most intense cold of an arctic winter's night. The venison, when in high condition, has several inches of fat on the haunches (a state of things very unusual in the American deer, *cervus Virginianus*, which, although a highly flavored meat, is usually lean and dry), and is said to equal the venison of the best fallow deer of the English parks. The geographical range of the caribou is over all the northern parts of Europe, Africa, and America; and it is observed by Mr. Bennet, that they are spread abundantly over all the habitable parts of the arctic regions, and neighboring countries, extending in the new continent to a much lower latitude than in the old, and passing still further south on all the principal mountain chains. In America the southern limit of the reindeer appears to be about the parallel of Quebec, across the whole continent; but the animal is most abundant between 68° and 66° N. lat. It has been found, but this is probably accidental, in that singular mountain region known as the Adirondac Highlands, in the north-eastern part of the state of New York, within 50 miles of Albany.

CARIBS, or CARIBBEES, an aboriginal tribe of South America, originally in possession of the smaller West India islands between Porto Rico and the gulf of Paria. They were compelled to leave the islands after the arrival of the Europeans. A small number of them are still found in Trinidad, Dominica, and St. Vincent. The race is also found on the shores of Central America and on the South American continent, along the lower Orinoco and the Caroni.

CARIOA, a remarkable tree found in the torrid regions of America and Asia, and classed in the natural family of the *cucurbitaceae*. It grows to the height of 20 feet, and bears a yellow melon-like fruit called the papaw, which is eaten with sugar or salt and either raw or cook-

ed. Its milky juice forms a cosmetic, and also keeps worms away from the tree. The leaves are employed as a substitute for soap, and ropes and webs are prepared from the bark. It is said, also, that the flesh of animals which are fed upon the papaw is peculiarly tender.

CARIGNANO, a town of Piedmont, remarkable for its manufactures of silk twist and confectionery. Carignano gives the title of prince to the present royal house of Savoy. Pop. 7,878.

CARILLO, BRAULIO, a Costa Rica statesman, born in 1800 at Cartago, was assassinated in 1845. He was a member of the federal congress of Central America, and afterward elected governor of Costa Rica, of which state from 1838 to 1842 he was dictator. His dictatorship, although absolute, was of advantage to Costa Rica; for while he repressed all revolutionary tendencies with a strong hand, he devoted the energies of an active mind to the advancement of the material interests of the state. He adjusted its foreign debt, built roads and bridges, and above all, introduced the cultivation of coffee, which has now become the great staple of the country, and has raised it from the poorest to be the richest state of Central America. As dictator, Carillo dispensed with ministers of state, transacting all of its public affairs in person, with only the assistance of his wife.

CARIMATA, an island of the Malay archipelago, lying off the S. W. coast of Borneo. Its N. extremity is in lat. 1° 38' S., long. 108° 49' E.; area 153 sq. m. It has no permanent population, but is resorted to by the Bajans or Malay sea gypsies, for the purpose of collecting tripang, tortoise shell, and edible birds' nests. It has several prominent mountain peaks, one 2,000 feet above the level of the sea. Between this island and Billiton is the Carimata passage, a route for large ships during the S. E. monsoon.

CARIMON, GREAT AND LITTLE, 2 islands of the Malay archipelago, situated at the E. extremity of the straits of Malacca, a few m. S. of Singapore. The larger has area 72 sq. m., the smaller about 5 sq. m.; the former has a scanty population of about 500 Malay fishermen, and the latter is uninhabited. Both islands have a very sterile soil; but are supposed to be rich in tin ore, some fine specimens of which have been recently found upon Little Carimon. According to stipulations in the convention of 1824 between Great Britain and Holland, the Dutch claim paramount sovereignty over these islands.

CARINI, a Sicilian town, pop. 7,000, in the province of Palermo, and 12 m. W. of that city. It is beautifully situated on a small river of the same name, and has a fine old Gothic castle. Near Carini are the ruins of the ancient Hyocara, the birth-place of the courtesan Lais.

CARINTHIA, or KÄRNTEN, a small duchy of Austria, forming part of the government of Laybach, in the kingdom of Illyria. It is a mountainous tract of country, divided since



1849 into 7 circles. Klagenfurth is the capital, where the diet of Carinthia is held, which is composed of 80 members. The Drave is its principal river, and the Klagenfurth or Wörth-See the only considerable lake. There are some manufactures, and there is a considerable trade in grain and cattle in Carinthia, but the principal wealth of the country is mineral, the great lead mines of Austria being located here. Area, 8,984 sq. m. Pop. 346,150, of whom 18,000 are Protestants, and the rest Catholics.

CARINUS, MARCUS AURELIUS, the elder of the 2 sons of the Roman emperor Carus, who conjointly succeeded to the throne on the death of their father, A. D. 284. His brother was supposed to have been murdered on his return from the East, and Carinus, ruling alone, became one of the most profligate and cruel of the Roman emperors. The soldiers having rebelled, and proclaimed Diocletian, Carinus collected the troops that were in Italy and marched into Mesia to meet Diocletian, and quell the revolt. A decisive battle was fought near Margus, in which Carinus gained the victory, but in the moment of triumph he was slain by one of his own officers, whom the vices of the emperor had outraged.

CARIPE, a town and valley of Venezuela, in South America, 40 m. S. E. from Cumana. The valley is noted for a cavern frequented by a species of night-hawk (*caprimulgus*), the young of which are annually destroyed in great numbers for the sake of their fat, of which excellent oil is made. The cave is of limestone formation, 2,800 feet deep, and for some distance 60 to 70 feet high. Humboldt visited and described this cavern. The town is the principal station of the Chayme Indian missions.

CARISBROOKE, an agricultural village, once a thriving market town, of the Isle of Wight, co. of Southampton, England, situated at the foot of a hill, near the centre of the island, in a parish of its own name,  $1\frac{1}{2}$  m. S. of Newport. Pop. of parish in 1851, 6,712. Under the independent lords of Wight it was the capital of the island, and afterward became the residence of the governor, who occupied a handsome mansion within the precincts of a ruined castle of great antiquity, crowning the hill back of the village. This castle is supposed to have been founded before the Roman invasion; was taken by Cerdic, the Saxon, in 580; enlarged by William Fitzosborne, a relative of William the Conqueror, and first lord of Wight, in the 11th century, and after many additions completed in the time of Elizabeth, when it covered an area of 20 acres. It was the place of confinement of Charles I. after his removal from Hampton Court, and a window is pointed out by which the royal captive made a fruitless attempt to escape. After his execution it became the prison of his 2 youngest children, the duke of Gloucester and the princess Elizabeth, the latter of whom died here. A ruined Cistercian priory, founded by

Fitzosborne, occupies an eminence opposite the castle. The priory church is now parochial, and the other remaining portions are occupied as sheds and stables. The village has an infant school and several chapels for dissenters. The parish contains infantry barracks, a house of industry for the whole island, a well-arranged juvenile reformatory, and some large corn mills on the Medina river.

CARISSIMI, GIOVANNI GIACOMO, an Italian composer, born at Venice in 1582, died at a very advanced age. He was living in 1672. He was for a number of years director of the pontifical chapel at Rome, and at his death left an enormous number of compositions, consisting mostly of oratorios, masses, and cantatas, but a small proportion of which were ever published. We are indebted to Carissimi for orchestral accompaniments to sacred music, and for great improvements in the recitative. He was also one of the first to write cantatas. His melodies are distinguished by grace and spirit, and his harmony is wonderfully effective. His style, perfected by his pupils, Buononcini, Bassani, and Scarlatti, is considered the foundation of the music of the 18th century.

CARLEE, or KARLEE, a village of Hindostan, in the collectorate of Poonah, presidency of Bombay, 40 m. E. of Bombay. It is remarkable for a Buddhist cave-temple, hewn from the face of a precipice, about  $\frac{1}{2}$  of the way up a steep hill, which rises 800 feet above the plain. A noble arch spans the entrance to the excavation, and on each side of the door is a screen work, covered with naked male and female figures carved in alto-relievo. In front are 3 lions placed back to back, on the top of a pillar; around the portico are several well executed figures of elephants of great size, each surmounted by a mohout and a howdah, containing 2 persons. The length of the temple is 180 feet, and its width 40 feet. It has a double row of sculptured pillars, terminating in a semicircle, and with its high arched roof, is not unlike the interior of a Gothic cathedral. Near it are several smaller excavations, apparently intended as cells for monks or hermits. These are much dilapidated, but the temple is in good preservation. The only object of devotion to be seen is the mystical chattah or umbrella.

CARLEN, EMILIA SCHMIDT, a Swedish novelist, born in Stockholm, 1810. Her first marriage was not a happy one. In 1841 she was married to her second husband, G. Carlen, a poet and novelist. She was 28 years old when she published her first novel, "Waldemar Klein." In 1851, an interval of only 13 years, she had already published her 22d work, each in several volumes. Her subjects are usually selected from the lower ranks of society, and her descriptions are more nearly transcripts of real life than efforts of the imagination. Some of her works have been translated into English, and published in this country.

CARLETON, an eastern county of Upper

Canada; area 898 sq. m.; pop. 81,897. It is traversed by a railroad extending from Prescott on the St. Lawrence to Bytown on the Ottawa.

CARLETON, SIR GUY, Lord Dorchester, a British general, born in Ireland in 1724, died in 1808. He distinguished himself at the sieges of Louisbourg, Quebec, and Belle Isle, and was wounded in 1762, at the siege of Havana. In 1773 he was made governor of Quebec. On the nomination of Burgoyne to the command, he threw up his commission, but was appointed the same year lieutenant-general, and succeeded Sir Henry Clinton as commander-in-chief in the American colonies.

CARLETON, WILLIAM, a popular writer of Irish stories, born in co. Tyrone, 1798. A peasant's son, he had obtained only an elementary education, when at the age of 17 he was received by a relative, a priest who kept a boarding school at Glasslough, where he remained 2 years. He went to Dublin with only a few shillings in his pocket, and after struggling a number of years was brought into notice by his "Traits and Stories of the Irish Peasantry." This was followed by other works, both pathetic and humorous. Several of his best works are of an anti-English partisan character.

CARLI, GIOVANNI RINALDO, count, an Italian economist and antiquary, born at Capo d'Istria in April, 1790, died in Milan, Feb. 22, 1795. In 1744 he was appointed by the senate of Venice to the professorship of astronomy and navigation in the university of Padua, and placed at the head of the Venetian navy. After ably discharging the duties of these offices for 7 years, he resigned them in order to devote himself entirely to his favorite studies. In 1754 he published the first volume of his great work on political economy, *Delle monete, e dell' istituzione delle vecchie d'Italia*, in 7 large vols. 4to. In 1765 Leopold, duke of Tuscany, placed him at the head of the council of public economy, and of the board of public instruction. He was, however, relieved from the labors appertaining to these offices several years before his death, though still retaining the emoluments accruing from them. During the leisure which the generosity of his patron thus afforded him, he completed and published at Milan in 5 vols. 4to his *Antichità Italiane*, a work on the literary and artistic antiquities of his country, which has been much eulogized by Italian critics.

CARLI, DEMAS, a Catholic missionary, born in Reggio, was sent in 1666 to Congo by the congregation of the propaganda, with father Michel Angelo Guattini and 14 other friars. Their health could not long endure the heat of the climate and the fatigues of the mission. Carli, after bearing up for a long time against a severe malady, was obliged to return to Europe. He wrote an account of his travels, which was translated into French, English, and German.

CARLIN, THOMAS, one of the pioneers in Illinois, and a governor of that state, born in

Kentucky in 1790, died Feb. 2, 1852. He removed to Illinois in 1818, and gradually accumulated wealth, and became known and respected among the scattered population about him. He was elected governor in 1838, and retained that office for 4 years, during a period of unusual and violent political excitement. Illinois, having engaged largely in internal improvements, suffered severely from the commercial revulsion which was then paralyzing the whole country. She was much in debt, and had within her borders no specie, and no available means of payment. The discussion of the slavery question, too, was then furious, and had just led to the tragic death of E. P. Lovejoy. At the same time the Mormons took up their position at Nauvoo, and politicians were beginning those movements for partisan ends, which seemed likely to throw the state into anarchy, and which ended ere long in the violent death of the Mormon leader. That Gov. Carlin, amid such a condition of affairs, was 3 times reelected to the chief magistracy, affords a sure indication both of his popularity and his force of character.

CARLINA, a name given to a common genus of the thistle, from a tradition that its root was shown by an angel to Charlemagne, as a remedy for the plague which prevailed in his army. The carline thistle is found on dry sunny hills in most of the countries of Europe. Several species of it are mentioned in botany.

CARLINO, CARLO ANTONIO BERTINAZZI, a celebrated harlequin, born at Turin, 1718, died 1788. He entered the Sardinian army at an early age, but at the death of his father, who was an officer, he quitted the service, and taught fencing and dancing. His favorite occupation, however, was playing comedy with his pupils, and his success in it suggested the idea of making it a profession. At this time the harlequin of the Bologna theatre ran away from his creditors, leaving the manager in great perplexity. Bertinazzi undertook at a moment's notice to act in his place, and the public did not suspect the substitution until the 4th performance. His success in Italy was so great that, in 1741, he was invited to Paris, and succeeded there. He had a remarkable faculty of dramatic improvisations.

CARLISLE, the capital of Cumberland co., Pa., on the Cumberland Valley railroad, is a handsome town situated in the great limestone valley enclosed between the Kittatinny and South mountains. The surrounding country is level, productive, and highly cultivated. The town is well built, with wide and spacious streets, a public square, on which stand the county buildings, and public edifices of a superior order. Dickinson college, in this place, founded in 1783, and now under the care of the Methodists, is one of the oldest and most flourishing institutions in the state. There are 11 churches, 4 newspaper offices, a town hall, market-house, bank, and young ladies' seminary. Half a mile from the village are a school for cavalry practice, and barracks for 2,000 men,

built in 1777, chiefly by Hessian troops made prisoners at Trenton. Four miles N., in a valley of the Blue mountains, are Carlisle sulphur springs, a pleasant summer resort. During the whiskey insurrection, in 1794, Gen. Washington had his head-quarters at Carlisle, and a few years previous Major André passed some time here as a prisoner of war. Pop. in 1854, about 6,000.

**CARLISLE** (anc. *Luguvallio* or *Luguvallum*), the county town of Cumberland, England; pop. in 1851, 26,583; 800 miles N. N. W. of London, by railway. It is situated on the river Eden, and is a handsome town, owing to the improvements of late years. There are a custom-house, a news-room, a market, and a handsome railway station. A fine 5-arch bridge has been built over the Eden. There are several institutions for benevolent purposes. The cathedral church is a structure of the middle ages, not remarkable for size or beauty. There are 4 other churches, several chapels, an endowed grammar-school, British, national, and infant schools, 2 literary institutions, a mechanics' institute, a library, and a savings bank. The castle was built by the Normans in 1092, and many parts of it are in excellent preservation. It is still used as a garrison fortress. The city is one of the oldest in England, and was a Roman station. Its proximity to the border made it important as a military station in the border wars between the English and Scotch. In the civil wars Carlisle sided with the king, and it declared for the pretender in 1745. The inhabitants are principally employed in manufactories of cotton goods and ginghams, foundries, hat factories, and dye works. It is connected with the Solway frith by a canal which gives it a share of the coasting trade. It gives the title of earl to the Howard family, and is a bishop's see. The municipal government is administered by 10 aldermen and thirty councillors. It returns 2 members to parliament, and is the centre of a poor-law union.

**CARLISLE, SIR ANTHONY**, an English surgeon and physiologist, born at Durham, 1768, died in 1840. He was surgeon of Westminster hospital for 47 years, and was knighted by George IV. He was the first to introduce the practice of holding public consultations in cases requiring operation; and also to substitute the straight-bladed amputating knife for the crooked one of former days. His chief work is his "Essay on the Disorders of Old Age."

**CARLISLE, FREDERICK HOWARD**, 8th earl of, a British statesman, born in May, 1748, died Sept. 4, 1835. In the house of peers he first distinguished himself by his recommendation of conciliatory measures toward the American colonies. He was one of the 3 commissioners appointed by George III. to visit America, and endeavor to restore peace. Accompanied by Gov. Johnstone and Mr. Eden, he set sail in 1778. The mission was unsuccessful in its main object, owing to the settled determination of the colonists to effect their entire separation

from the British crown. From 1780 to 1789, he was viceroy of Ireland, afterward became lord privy seal; in 1791-'92 opposed the policy of Pitt in resisting the aggressions of Catharine II. upon Turkey; in 1792 he abandoned his opposition to Pitt, and supported the war against the French republic. He was a warm partisan of the union with Ireland, and opposed the enactment of the corn laws in 1815. He published in 1801 the "Tragedies and Poems of Frederic, Earl of Carlisle," which Byron commends in the "Hours of Idleness," while in "English Bards and Scotch Reviewers" he launches a sarcastic couplet against his noble uncle and guardian, who had in the mean time offended him by refusing to introduce him to the house of lords.—**GEORGE WILLIAM FREDERICK HOWARD**, 7th earl of Carlisle, and grandson of the preceding, born April 18, 1802, became earl Oct. 7, 1848, previous to which, as Lord Morpeth, he had travelled extensively in the United States. He was a long time attaché to the British embassy at St. Petersburg. In the reformed house of commons he represented the West Riding of Yorkshire, and under the Melbourne ministry was secretary of state for Ireland. In 1841 he was defeated in the West Riding by his conservative opponents. In 1846, under the administration of Lord John Russell, he was appointed commissioner of woods and forests, and chancellor of the duchy of Lancaster. He was the first of the whig noblemen of the official class to give in his adhesion to the views of the anti-corn law league. In 1856 he delivered before the mechanics' institute at Leeds 2 lectures, since published in pamphlet form, on the life and writings of Pope, and on the United States. Previous to the late eastern war, he made a tour in the east of Europe, and published his "Diary in Turkish and Greek Waters." On the accession of Lord Palmerston in 1855, he was nominated lord lieutenant of Ireland, which office he held till the resignation of the Palmerston ministry in 1858. A work from his pen entitled "The Second Vision of Daniel" was published in July, 1858.

**CARLOO**, a kind of isinglass, made of the sturgeon's bladder, and used chiefly for clarifying wine. It is imported from Russia.

**CARLOS, DON. I.** Infante of Spain, son of Philip II., born at Valladolid, July 3, 1545, died July 25, 1568, in prison at Madrid, and was buried in the nunnery of the Dominican convent *El Real*. His mother, Maria of Portugal, died 4 days after having given him birth. He was sickly, and as he grew up, was subject to violent bursts of passion, which his father hoped would be subdued by the discipline of the university at Alcalá. But as this proved of no avail, he was considered unfit for the throne, and in 1563 his cousins, the archdukes Rudolf and Ernest, were appointed in his stead presumptive heirs to the crown. When Alva was appointed in 1567 governor of Flanders—a post to which Don Carlos had aspired—the infante's exasperation led him to plan

an assault upon his father, and to perpetrate one upon his uncle Don Juan, in consequence of which he was put under arrest, Jan. 18, 1868, and subsequently transferred to the prison where he died. His death as well as his life gave rise to many conflicting rumors. The incompatibility of temper between a rigid, iron-hearted man like Don Philip, and a morbid, impulsive youth like Don Carlos, the fact that the infante had been engaged to Elizabeth of France, who subsequently became his step-mother, his sympathy with the revolt of the Netherlands, and his hatred of Alva and the other ministers of his father, all conspired to invest the melancholy fate of the infante with a halo of romance, which has been poetically treated by Alfieri, Campistron, Otway, and others, and above all by Schiller. II. CARLOS MARIA ISIDORE, pretender to the crown of Spain, son of King Charles IV., born March 29, 1788, died in Trieste, March 10, 1855. Many of the opponents of the constitutional régime which was restored in 1820, gathered around Don Carlos, hoping that, after the decease of his childless brother Ferdinand VII., he would ascend the throne. But these hopes were frustrated by Ferdinand's marriage with Maria Christina, and by the abrogation of the Salic law, which placed Isabel upon the throne. In 1832, when Ferdinand was supposed to be on the eve of death, the Carlists succeeded in extorting from him a decree reestablishing the Salic law, and thus excluding Isabel; but he recovered his health, and the fraud practised upon him was immediately redressed. In 1833, when Ferdinand died, Don Carlos proclaimed himself king. Maria Christina, the regent, branded him as a rebel, and concluded with Britain, France, and Portugal, the so-called quadruple alliance, the practical effect of which was to expel Don Carlos and Don Miguel, the champions of absolutism, from Spain and Portugal. On July 1, 1834, Don Carlos left England, whither he had fled, and smuggling himself into Spain, succeeded in kindling a civil war in the northern provinces, which raged for several years, Don Carlos eluding the vigilance of his opponents until 1839, when he was compelled to leave the Spanish territory and to betake himself to France, where, upon his refusal to renounce his claims, he was, by order of the French government, detained at Bourges. The decree which ordained his perpetual expulsion from Spain was, by unanimous vote, confirmed by the cortes in 1836. In 1845 he adopted the name of count of Montemolin, and on receiving permission to leave France, took up his abode in Austria. —His first wife was Maria Francisca de Assis, daughter of King John VI. of Portugal, who bore him 3 sons, Don Carlos in 1818, Don Juan Carlos in 1823, and Don Fernando in 1824. His 2d wife, whom he married in 1838, and who survived him, is Maria Theresa, infanta of Portugal and princess of Beira, widow of the infante Pe-

dro, of Spain, and mother of the infante Sebastian of Portugal. III. CARLOS LUIS MARIA FERNANDO, the eldest son and heir of Don Carlos the pretender, born Jan. 31, 1818. In 1846 he left Bourges, where he had resided with his father, and took up his abode in England under the name of the count of Montemolin. In April, 1849, he made an attempt to introduce himself in disguise into Spain, but he was arrested, detained from April 5 to the 10th in the citadel of Perpignan, and on April 15 he was again in London. On July 10, 1850, he married Maria Carolina Ferdinanda, a sister of the present king Ferdinand II. of Naples.

CARLOVINGIANS, or CAROLINGIANS, an illustrious imperial family who, during the 9th and 10th centuries, gave sovereigns to Germany, France, and Italy. Their origin is traced back to Arnulf and Pepin of Landen, 2 powerful Frankish lords of Austrasia in the beginning of the 7th century, while they derived their name from Charles Martel, the conqueror of the Saracens at the battle of Poitiers, in 732. This hero, the son of Pepin of Herstal, was the founder of the greatness of his house. Satisfied with the titles of duke of the Franks and mayor of the palace, under the weak Merovingian kings, he ruled with an absolute power the Frankish kingdoms of Austrasia, Neustria, and Burgundy. His son, Pepin the Short, confining within the walls of a convent the last of those kings, Childeric III., assumed the royal title, and his grandson, Charles, afterward known as Charlemagne, having extended his conquests as far as the Garigliano on the S., the Oder on the N., and the Carpathian mountains and the Theiss on the E., restored the western Roman empire, and consequently styled himself emperor. This Carolingian empire, consisting of a motley assemblage of nations brought together by conquest and decidedly hostile to each other, could not long outlive its founder; it began indeed to totter on his death, and then gradually fell into ruins. Its final disruption, taking place in 888, was followed by no less than 9 separate kingdoms; the most important of which, Germany, France, and Italy, continued for a while under the sway of the descendants of Charlemagne. We subjoin a list of the sovereigns of this family: EMPERORS. Charlemagne, 800-814; Louis the Weak, or Débonnaire, 814-840; Lothaire, 840-855; Louis II., son of Lothaire, 855-876; Charles the Bald of France, 876-877; Charles the Fat of Germany, 877-887. This was the last of the actual emperors of the Carolingian dynasty; but several princes, most of them in the feminine line, Guy of Spoleto, Lambert, Arnulf of Carinthia, Louis and Berenger of Italy, boasted of the empty title.—KINGS OF GERMANY. Charlemagne and Louis the Weak were followed by Louis the German, 840-876; Louis the Younger or of Saxony, 876-882; Charles the Fat, 882-887; Arnulf of Carinthia, 887-899; Louis the Child, 899-911. To the extinct house of Charlemagne those of Saxony and

Franconia succeeded.—KINGS OF FRANCE. The Carolingians here are styled the 2d race of the Frankish kings, and succeeded the Merovingians; Pepin the Short, 752-768; Charlemagne, 768-814; Louis the Débonnaire, 814-840; Charles the Bald, 840-877; Louis the Stammerer, 877-879; Louis III. and Carloman, 879-884; Charles the Fat of Germany, 884-888; Charles III., the Simple, 893-923; Louis IV., D'Outremer (ultramarinus), 936-954; Lothaire, 954-986; Louis V., the Idle, 986-987. On the death of this prince, Hugh Capet was elected king by the nation, to the exclusion of the lawful heir, Charles, duke of Lorraine, the uncle of Louis V. Hugh was the head of the 3d dynasty, called after him Capetians.—KINGS OF ITALY. Charlemagne, 774-781; Pepin, his son, 781-812; Bernard, 812-818; Louis the Débonnaire of France, 818-820; Lothaire, 820-855; Louis II., 855-875; Charles the Bald of France, 875-877; Charles the Fat of Germany, 879-881; Guy of Spoleto, 881-888; Berenger, 888-894 and 905-924; Lambert, 894-900; Louis, 900-905; Hugh of Provence, 926-947; Lothaire, 945-950; Berenger II. and Adalbert, 950-961. On the death of Adalbert, the kingdom of Italy was united by Otho the Great to the German empire.

CARLOVITZ, CARLOVIOZ, or CARLOVITZA, a military frontier town or captaincy of Austrian Slavonia, pop. about 5,800, in the district of Peterwardein, with a cathedral, 8 churches, a Greek seminary, a lyceum, a Roman Catholic academy, a brisk transit trade and fisheries, an extensive export trade in wormwood and wine, the quantity of the latter exported in some years amounting to 1,800,000 gallons. The great wine mountain in the vicinity of Carlovitz yields the best and strongest qualities of Hungarian wines. The Carlovitz red wines are especially renowned. The town is the see of a Greek archbishop—the only Greek prelate of that rank within the Austrian dominions. A peace was concluded here in 1699, for the term of 25 years, between Austria, Poland, Russia, Venice, and Turkey, by the mediation of England and the Netherlands. By the terms of this treaty, the emperor of Austria received Transylvania and Bacaka; Russia, Azof; Poland received back Podolia, the Ukraine, and Kamienec, but ceded some Moldavian towns. Venice retained the Morea, and Turkey remained in possession of Temesvar. During the revolutionary era of 1848-49, Carlovitz was the focus of the Servian rebellion against Hungary, and the theatre of collision between the Servians and the Magyars, and at a later period between the Hungarians and Austrians.

CARLOW (anc. *Catherlogh*), a county in the province of Leinster, Ireland; area, 846 sq. m.; pop. in 1851, 68,075. It is level except on the S., where the Blackstairs and Mt. Leinster ranges give a rugged character to the district. The rivers are the Slaney and the Barrow. Carlow is of granite formation, covered in the

plains by beds of gravel and cropping out in the eminences of Mt. Leinster and the Blackstairs. It is well known for its agricultural character and produce. Out of the whole area of the county there are but 81,000 acres uncultivated, and cereals, roots, and green crops are grown luxuriantly. The history of the county is, from its central position, closely connected with that of the English conquest and the Irish struggles to recover their independence. In 1798 Carlow was the seat of important movements. The present condition of the population is much improved by the presence and example of the proprietors, and the consequence is seen in the skillful and productive cultivation of the land. The antiquities are the cromlechs and the cathedral at Old Leighlin, a castle of the Butlers at Olinmore, in fine preservation, and several other remains in various parts of the county. The towns are Carlow, Tallow, and Bagnalstown. There are 59 national schools, attended by 6,900 pupils of both sexes.

—CARLOW, a parliamentary borough, town, parish, and capital of the above-described county, 56 m. S. W. from Dublin by railway; pop. of borough, 10,292. The town is situated at the confluence of the Burrun with the Barrow. The principal edifices are a fine court-house, a gaol, a parish church, a Roman Catholic cathedral and college, 2 nunneries, a lunatic asylum, infirmary, hospital, work-house, barracks, and 2 bridges. There are several diocesan and national schools. The population are largely engaged in the provision trade. There are several flour mills, and it is an important market for agricultural produce of the county. The castle, of which the remains are still extant, built in the 12th century, was the nucleus of the town, which was made a borough in 1908.

CARLSBAD, a Bohemian town within 70 m. of Prague, famous as a watering place. It takes its name from the emperor Charles IV., who, in the middle of the 14th century, was the first to avail himself of the healing power of the springs, and whose statue adorns the market place. Next to Charles IV., the greatest benefactor of the town was a Scotch nobleman, the earl of Findlater and Seafield, who laid out some beautiful parks. An obelisk in his honor was erected in a beautiful forest adjoining the town. Excursions are frequently made to this spot and to the surrounding mountains. Many eminent men, as Humboldt, Berzelius, Friedrich Hoffmann, A. G. Werner, and, above all, Goethe, have been frequenters of the place. The chief ingredients of the springs are sulphate of soda, carbonate of soda, and common salt; and the principal springs are the Strudel, Mühlbrunnen, and Schlossbrunnen, having respectively a temperature of 165°, 188°, 147°, and 183° F. The waters are efficacious in liver and kidney diseases, and in a variety of other complaints. After the termination of the Carlsbad season, many of the visitors resort to the waters of Teplitz, Franzensbad, Ischl, &c. Since 1843,

the waters of the springs are exported to distant places, without being deteriorated by the journey. In 1858, a new spring was discovered by Dr. Mannl, containing carbonic and phosphatic oxide of iron.—In August, 1819, a ministerial congress was convened at Carlsbad by the German powers, principally with a view of crushing the seditious spirit which at that time especially manifested itself at the universities and among the turners. The assassination of Kotzebue by Sand afforded a pretext to the German governments to carry out their long-cherished designs; and by the decrees promulgated at Carlsbad on Sept. 20, 1819, the Burschenschaften, or political unions of the students, were declared illegal, the press was gagged, and other stringent restrictive measures adopted. On April 2, 1848, however, these decrees, as far as they had been approved by the German diet, were rescinded by that body.

**CARLSBURG**, or **KARLSBURG**, a fortified town in Transylvania, S. of Klausenburg; pop. about 12,000. It contains many fine public edifices, among which the citadel, the palace of the bishops of Transylvania, the Roman Catholic cathedral, and the gymnasium, are particularly worthy of note. A considerable portion of the inhabitants consists of Jews, who here enjoy peculiar privileges.

**CARLSORONA**, a maritime province of Sweden, bounded S. and E. by the Baltic, W. by Christianstadt, and N. and N. E. by the provinces of Wexiö and Kalmar; area 1,185 sq. m.; pop. in 1855, 111,255.—The capital of the above province, of the same name, stands at the southern extremity of Sweden, on 5 small islands, which are connected with each other and with the mainland by numerous bridges, and is the principal station of the Swedish navy. The town is strongly fortified, and has a safe and capacious harbor, which has everywhere sufficient depth of water for the largest vessels. The houses are well built, though wood is very much used in their construction. Carlsrona has an extensive naval arsenal and dockyard, from which it is separated by a wall. Its principal edifices are the council-house, the prefect's residence, the public schools, and the churches. Its chief manufactures are naval equipments, linen cloths, tobacco, and refined sugar. As the outport of Gothenburg, it carries on a considerable export trade in metals, potash, and other Baltic produce. Pop. in 1855, 14,518.

**CARLSHAMN**, a fortified seaport town of Sweden, on the Baltic; pop. in 1855, 5,214. It is well built, has a small but secure harbor, a good market-place, a town-house, two churches, numerous factories, and an active trade in iron, timber, potash, pitch, and tar.

**CARLSRUHE**, capital of the grand duchy of Baden, and of the circle of Middle Rhine, on an elevated plain of the Hartz Forest, within 5 m. of the Rhine, 39 m. of Stuttgart, and an hour's ride of Baden-Baden, and on the railway

line between Mannheim and Basel; pop. in 1855, 25,160. The town was built around a hunting seat erected in 1715 by Charles William, margrave of Baden, whose remains are interred beneath the pyramid dedicated to his memory upon the market-place. Carlsruhe was designed in the form of an extended fan round the grand-ducal palace, from which, as a centre, 82 public avenues radiate, 17 of which, forming the principal streets, have been built on both sides. The new theatre and the academy are the finest buildings of Carlsruhe. The palace, erected in 1751 on the site of the old structure, presents nothing remarkable except the *Bleythurm* (lead tower), which affords a fine view over the city and surrounding country. Of the public squares, the palace and market squares are the most beautiful. The educational institutions of Carlsruhe are remarkable, especially the polytechnic institute, which is attended by many pupils from distant countries. The lyceum, the seminary for teachers, the military academy, the academy of design, painting, and engraving, the cabinet of natural history, the gallery of engravings, the grand-ducal archaeological cabinet and that of medals, the court library with 80,000 volumes—all these afford evidences of the excellent arrangements which exist at Carlsruhe for the promotion of knowledge. The fine public parks which are thrown open to the people, and the trees planted in the squares, constitute the chief beauties of the place. There are several palaces belonging to the Baden nobility, and not less than 90 public buildings, including the churches, the mint, the school-houses, the hospitals, &c., or about 1 public building for every 880 inhabitants. Among the hospitals is one endowed with \$44,000 by the celebrated London tailor Stultz, who was a native of Baden, and whose munificence has been rewarded by the grand duke with the title of baron. Two-thirds of the inhabitants are Protestants, the remainder Catholics and Jews. The new Protestant church, built in 1807, is a noble Roman structure. The synagogue is in oriental style, and the new Catholic church has a fine portico with 8 Ionic pillars. The Carlsruhe railway depot is a rather showy but at the same time imposing building, and has a holiday look, as if people travelled more in search of pleasure than of business. The *Karlsruher Zeitung* is the principal newspaper of the town.

**CARLSTAD**, a province of Sweden, between lat. 59° and 61° N., and lon. 12° and 14° 30' E., bounded on the S. by Lake Wener and the province of Wenersborg, on the W. by Norway, and on the N. and E. by the provinces of Öerbrö and Faelun; area, about 7,000 sq. m. The population has increased from 140,977 in 1815, to 186,783 in 1835, and 232,521 in 1855. The province is rich in iron, copper, and lead mines, and the trade in iron is of great importance.—**CARLSTAD**, the capital of the province, stands on an island of Lake Wener, 160 m. W. of Stockholm. Among the public buildings are a cathedral, a college, a cabinet of natural history, and an ob-

servatory. The exports are copper, iron, corn, salt, and timber. The opening of the Gotha canal, which unites the lakes of Wener and Wetter and the Baltic with the Cattegat, has had a favorable effect upon the commercial activity of Carlstadt. The town and its vicinity are noted for fine advantages for fishing and shooting. Pop. in 1855, 4,128.

**CARLSTADT, ANDREAS**, a German reformer, born at Carlstadt, in Franconia, about 1483, died in Basel, Dec. 25, 1541. He adopted the name of his native town, but his real name was Bodenstein. He took his degree of D.D. at Wittenberg, was appointed professor in that university, and subsequently advanced to the dignity of canon, dean, and archdeacon. From the very commencement of the reformation he was one of its firmest and most zealous adherents. In 1519 he held a controversy at Leipsic with Eckius on the doctrine of free will, in which he proved himself so decided an antagonist of Catholicism, that he was soon after excommunicated by the pope. This severity on the part of his opponents, and his own ardent and impulsive temperament, hurried him into a course, in 1521, which Luther and Melancthon severely condemned. He entered the great church of Wittenberg at the head of an infuriated multitude, and destroyed the crucifixes, images, and altars of that venerable fane. He rejected the title of doctor, abandoned his professorship, applied himself to manual labor, and affirmed that learning was useless to biblical students, who ought rather to toil like him, with their hands than waste their time in the acquisition of unprofitable knowledge. After Luther's return from the Wartburg, however, the old order of things was restored in the church of Wittenberg, but Carlstadt went 2 years afterward (1524) to Orlamunde, a small town in the electorate of Saxony, where he forcibly took possession of the pulpit, creating disorder, which was again denounced by Luther. Expelled from Saxony, he brought forward the question of the real presence of the body and blood of Christ in the eucharist, avowing himself the antagonist of Luther, and defending the extreme Protestant view of that doctrine. Suspected of sympathizing with the peasants' war in Franconia, he continued to give umbrage to the authorities, and led for several years an unsteady nomadic life, until, reduced to extreme poverty, he appealed to Luther, who generously granted him assistance and a domicile near Wittenberg, under the condition that he would refrain from giving utterance to his religious opinions. Having quietly spent about 8 years in agricultural and commercial occupations, he again came forward in 1528 with several violent publications; and to escape from the indignation of Luther, against whom he was believed to have planned conspiracies, he betook himself to Denmark, East Friesland, Strasbourg, and finally to Zürich, where he was kindly received and assisted by Zwingli. He was appointed archdeacon in the latter city, and from

1534 to the time of his death he officiated as preacher and professor of theology in Basel. Carlstadt was a man of considerable learning, but his impulsive temperament unfitted him for practical affairs. He had a numerous body of followers in Germany, who were denominated Carlstadtians or Sacramentarians. He was the first Protestant divine that entered into the nuptial bonds.

**CARLUKE**, a municipal borough and parish of Scotland, county of Lanark, on the Clyde; pop. of the parish in 1851, 6,283; of the town, 2,845. There is a handsome church here, and since the introduction of the cotton manufacture the place has increased rapidly. The banks of the Clyde in this vicinity are famous for orchards, some of which are of vast extent. The antiquary Major-Gen. Roy, and the sculptor Forrest, were natives of this parish.

**CARLYLE, JOSEPH DAWEK**, an English oriental scholar, born in Carlisle in 1759, died at Newcastle-upon-Tyne in 1804. He was educated at Cambridge, and elected fellow of Queen's college, where in 1794 he was appointed professor of Arabic. He was afterward chaplain to the embassy at Constantinople, and collected there valuable Greek and Syriac MSS. He projected a revised edition of the New Testament with the aid of these MSS., but did not live to complete his plan. He was the author of a translation of an Arabic history of Egypt; a volume of translations of Arabic poetry from the earliest times to the extinction of the caliphs; a posthumous volume of poems descriptive of the scenes of his travels; and an unfinished edition of the Arabic Bible.

**CARLYLE, THOMAS**, a British author, born in 1795, in the parish of Middlebie, near the hamlet of Ecclefechan, in Dumfriesshire, Scotland. His father was a small farmer of that district, and his mother descended from a family of the same neighborhood, both being represented as persons of extraordinary native sagacity and force of character. He was the eldest of their children, and received the best part of his education at home, though he enjoyed, beside, the advantages of a school at Annan, and of the university at Edinburgh. At school he formed the acquaintance of Edward Irving, then in his 16th year, and on a visit to the teacher, "fresh from college, with prizes, high character, and promise," and full of "hope, joy, and healthfulness without end." As Carlyle was but 14, there can be no doubt that the extraordinary mind of Irving, "opening a whole wonder-land of knowledge," exercised a powerful influence on his dawning faculties. He has left a record of it in the beautiful and touching sketch of the famous preacher which he contributed to "Fraser's Magazine" in 1835, when the "foul Circcean draught of popular applause having maddened his intellect, death fell upon his diseased and prematurely aged body." "But for Irving," he says, "I had never known what the communion of man with man means. His was the freest, brotherliest, bravest human soul

mine ever came in contact with: I call him, on the whole, the best man I have ever found in this world, or now hope to find." This was an honorable witness of friendship at a time when the reputation of Irving had fallen under the world's contempt, as that of an impostor or a madman. At college, however, Carlyle was chiefly distinguished for his attainments in mathematics, and the pursuit which he proposed to himself was the Christian ministry. But he rummaged the college libraries in the search of all kinds of knowledge, and made himself familiar, as few young men have done, with foreign languages and the old English literature. His summer vacations were passed in rambling among the hills and moors of his native land. For 2 years after leaving college, about 1820, he occupied himself in teaching in the family of Mr. Charles Buller, when he became convinced that not the ministry, but general literature was his true vocation. His first work was a translation of Legendre's "Geometry," to which he prefixed an "Essay on Proportion;" and the next the "Life of Schiller," the beautiful prose, fine criticism, and manly sentiment of which must have convinced his friends that he had rightly chosen his calling. It was originally published in the "London Magazine" for 1823-'4, to which Hazlitt, Hood, Lamb, De Quincey, and Allan Cunningham were contributors. At the same time a translation of Goethe's *Wilhelm Meister* appeared, and astonished the critics by the facility with which the ease, the power, and the grace of that remarkable work had been transfigured into another tongue. It was followed, in 1827, by the "Specimens of German Romance," wherein the exquisite tales of Tieck, Jean Paul, Musæus, and Hoffmann received for the first time an adequate English dress. He had been married the previous year to Miss Welsh, a lineal descendant of John Knox, who brought to his home the best virtues and graces of the estimable Scottish female character. Residing for a little while in Edinburgh, they then removed to a small estate at Oraigenputtoch, in the wildest part of Dumfriesshire, which he has described in so earnest and poetic a spirit in a letter to Goethe, with whom his translations had brought him into correspondence. "Our residence," he says, "is not in the town itself, but 15 miles N. W. of it, among the granite hills and black morasses which stretch westward through Gallo-way, almost to the Irish sea. In this wilderness of heath and rock, our estate stands forth, a green oasis, a tract of ploughed, partly enclosed, and planted ground, where corn ripens, and trees afford a shade, although surrounded by sea-mews and rough-woolled sheep." He then proceeds to paint a charming picture of rural and domestic comfort. "Piled up on the little library table," he does not forget to add, "are a whole cart-load of French, German, American, and English periodicals, whatever they may be worth." It was in this solitary, but delightful retreat, that Mr. Carlyle began his papers for the "Edinburgh Review," the first of which that

appeared was the essay on Jean Paul, which was followed by that on German literature, and then by that on Burns. These alone, had he put his name to them, would have given him a first rank among the writers of English. Their profound thought, their searching analysis of character, their deep fountains of noble sentiment, their sinewy language, and their varied learning, stamped the author as not only one of the great thinkers, but as one of the most eloquent writers of his age. All the while he was engaged on lesser articles for the "Edinburgh Encyclopædia," among which those on Montaigne, Montesquieu, Pitt, and Nelson are ascribed to him. He wrote also for the "Foreign Quarterly," and for the magazines. In the intervals of leisure, a run over to Edinburgh brought him into contact with Wilson, Jeffrey, and other literary celebrities, whose conversation, doubtless, recreated and quickened his spirits, as well as his mind. In the course of the years 1828-'34, he published in "Fraser" the most peculiar and remarkable of all his works,—the quaint, the whimsical, the profound, the humorous, and the poetic "Sartor Resartus," in which he seems to have poured all the accumulated treasures of his mind and heart. Under the eccentric guise of a vagabond German philosopher, and on the homely topic of the philosophy of clothes, he has brought together much of the deepest speculation, the finest poetry, the noblest morals, and the wildest humor that his or any age has produced. The strange conceits of it, and the barbaric rudeness of the style, not untouched with more than barbaric splendor, repelled the booksellers from it, as from some huge, unknown bomb-shell, charged with all manner of combustibles. Nor did it readily find a public, when published, but, like many other new things, had to create its own audience. Since then it has come to be more enthusiastically and fitly appreciated. During the negotiations for the printing of "Sartor," Mr. Carlyle removed to London (1834), and has continued to reside there in a suburban neighborhood at Chelsea. His marked originality won him many admirers, while his geniality and humor made him many friends; and, from the publication of "Sartor" up to the present hour, his pen has been recognized as one of the great powers of English literature. It was not, however, till the year 1837, when he brought forth the "French Revolution, a History," that his name was attached to his works, and he became known beyond a select and inner circle. While he was preparing that marvellous production, it is said, the manuscript of the 1st volume was burnt, and he was compelled to go over the vast field of reading and labor which it embraced anew. Not so much a "history"—as it supposes in the reader a considerable familiarity with the events which it professes to portray—as a grand collection of historical pictures, painted with fire and darkness, it may safely be pronounced the most



luridly vivid and fearful presentation of that stupendous epoch which has yet been made. The most animated delineations of Thiers are tame beside it, and the most brilliant sketches of Lamartine mere outlines in charcoal and chalk. But it has this defect, that the philosophy of it is contemptuous and mocking, and it depicts the varied and gigantic characters which stalk across the scene, not so much as responsible and living mortals, as the mere mechanical implements of some tremendous and irresistible destiny. The honor of collecting the "Miscellanies" of Mr. Carlyle belongs to Mr. R. W. Emerson, of Concord. Mr. Carlyle's studies for the "French Revolution" deeply interested him in social problems, the first fruits of which interest appeared in the "Chartism" of 1839. It was his first dash at the great practical questions of the day, which showed that, although he had not considered them as profoundly or as hopefully as he ought to have done, he had yet laid them close to his heart. They were interrupted for a time by a series of lectures which he delivered in London from 1837 to 1840, to numerous and excited audiences, on "German Literature," the "History of Literature," the "Revolutions of Modern Europe," and "Heroes and Hero-Worship," the last of which alone has thus far been published. It was an evidence to most of his readers of two things: 1, that the strangely abrupt and tortuous style, which was perhaps very well adapted to the peculiar objects of "Sartor" and the "French Revolution," was now a chronic malady with him; and, 2, that the beautiful reverence for silent intellectual force which marks his articles on Goethe, Burns, Schiller, &c., had been converted into a worship of mere force of will and strong animal impulse. The tendency to this substitution was already to be recognized in the loud preference for Danton and Mirabeau in the "French Revolution" to Robespierre; but it was made more obvious still in the "Heroes," and in his next work, "Past and Present." In 1845 he edited, as they had never before been edited, with some insight into the grand character of the man, the "Letters and Speeches of Oliver Cromwell," in which work his literary career appears to have culminated. The "Latter-Day Pamphlets," which appeared in 1850, and in which he resumed his discussions of social questions, are only remarkable for a violent imitation of himself, and not of his better self. The "Life of John Sterling," in 1851, evinced some return to his ancient and genial methods both of expression and thought, but the subject was scarcely large enough to arouse his powers. His "Collected Works" were published in London in 1857-'58. The first 2 volumes of the "Life of Frederic the Great," of Prussia, to which he had been devoted for several years past, was published in Sept. 1858. A "Memoir of Mr. Carlyle, with Passages selected from his Writings," was published by Thomas Ballantyne in 1855. He has been most elaborately characterized in an article

in the "Westminster Review," while in Mr. Bayne's "Christian Life," on the other hand, there is a vehement but honest assault upon the unevangelical spirit of his writings. But the time has hardly come for a perfect and truthful appreciation of his genius, and of its influence upon the moral and intellectual destiny of the 19th century. His entire significance has not yet been developed. In the opinion of many, he has given a new turn to the whole of English thought and criticism. He has imparted to the art of writing a nobler tone, opened it to a wider range, infused into it a profounder spirit; no one more than he can quicken the impulses of young writers, as with the sound of a trumpet—no one lead them to richer or better sources. If his wild and obnoxious manner has somewhat corrupted style, his lofty and suggestive thought has stimulated sentiment; if his scheme of philosophy is imperfect as a whole, his occasional and disconnected views are full of grandeur, of beauty, and of truth; he is not always the safe guide, but is always an invaluable help; and though our benevolent feelings are repulsed by the stern and remorseless indifference to the individual which shows itself in his later works, we may still discover beneath the incrustation of scorn and callousness which has grown over him a noble, fiery soul.

CARMAGNOLA, a Sardinian town, pop. about 18,000, on the river Mella, in the province of Turin, famous for its extensive trade in silks and for its silk fairs, which annually take place in June. The town is on the railway line between Turin and Nice, contains several fine streets and public squares, 5 churches, 2 convents, and a hospital.

CARMAGNOLA, FRANCESCO, a famous *condottiere*, whose real name was Busone, born about 1390, in the above-described town of Carmagnola, the name of which he adopted. The son of a peasant, he was a herdsman in his youth; but enlisting in the service of the duke of Milan (Filippo Maria Visconti), he rapidly rose in rank, and aided his master in regaining a great part of Lombardy, and in extending his possessions. The duke, however, became suspicious of his loyalty, confiscated his property, cast his wife and children into prison, and banished him; upon which Carmagnola entered the service of the republic of Venice, from which he received the appointment of generalissimo. He wrested Brescia from the duke of Milan, and entirely routed his army at the battle of Maalo in 1437. After the battle he released his prisoners, which was frequently done at that time by *condottieri*, but incurring the suspicions of the Venetian senate for doing so, and his subsequent military operations not proving successful, he was recalled to Venice, under the pretext that his advice was needed for affairs of state, placed under arrest, accused of treason, put to the torture and beheaded, May 8, 1432.

CARMAGNOLE, a song of the French reign of terror, commencing with the words:

*Madam! Voto aeoli promiss,*

each stanza ending with:

*Dansons la Carmagnole,  
Vive le son  
Du canon!*

—The same name was also applied to the revolutionary costume worn by many of the terrorists. It is further applied to Savoyards in Paris, who are supposed to have emigrated from Carmagnola; and the same town, whether justly or not, is also supposed to be in some manner associated with the origin of the two first-named meanings of the word.

CARMEL, a range of limestone hills in N. W. Palestine, terminating at the sea by the promontory of Mount Carmel. Carmel is celebrated for the fertility of its sides and slopes, and although cultivation has ceased, enough remains in the timber, the wild olive, and the pasture, to bear out its ancient repute. It is the scene of some of the great events of biblical history, and was the retreat of the prophet Elijah from the tyranny of Ahab and the hate of Jezebel. The brook Kishon runs at the foot of Carmel.

CARMELITES. Mt. Carmel appears to have been a favorite place of resort for Jewish ascetics, and often furnished a secure and solitary retreat to the prophets Elijah and Elisha. After the Christian era, hermits were fond of fixing themselves in the same region, and hence appears to have sprung up among the Carmelites the tradition that their order was founded by the prophet Elijah upon Mt. Carmel. The most trustworthy historical account of the foundation of this celebrated order, is that given by the learned Bollandists. A crusader of the 12th century, Berthold of Calabria, made a vow in the heat of battle to embrace a monastic life if he obtained the victory; and the battle being won, fulfilled his vow by retiring to a cave on Mt. Carmel, called the cave of the prophet Elijah. He was accompanied by some others, and their increasing numbers made it soon necessary to build a monastery. Berthold's successor obtained a rule from Albert, patriarch of Jerusalem, which was confirmed by Honorius III. in 1224. Under Alanus, their 5th general, the Carmelites migrated to Europe, to escape from the persecution of the Saracens, and a modified rule, suited to the western climate and manners, was adopted and approved by Innocent IV. This order, which was very severe, extended itself widely, and gained a high reputation in Europe. The female branch of the order was founded by F. John Soreth, in the 15th century. In process of time, great relaxation having been introduced into the rule, St. Teresa, and St. John of the Cross (1562) set on foot in Spain a reformation, on the basis of the original rule of Albert, as modified by Innocent IV. This resulted in a division of the order into 2 branches—one of the milder, and one of the stricter, observance. The number of monks in the milder observance is

now about 700; in the stricter, about 1,300. There are 90 convents of Carmelite nuns, in each of which the number is restricted to 21. One of these convents is in Baltimore, having been transplanted from the lower counties of Maryland, where it was founded in the latter part of the 18th century. The Carmelites of Baltimore formerly kept an academy for young ladies, but they have recently given it up, and with some few necessary exceptions, keep the strict rule of St. Teresa. Notwithstanding their austere life, it is remarkable that they generally enjoy good health, and frequently attain to a very advanced age.

CARMER, JOHANN HEINRICH KASIMIR, count, a Prussian statesman, born at Creuznach in 1721, died at his estate of Rützen, near Glogau, in 1801, celebrated for his law reforms, which, under the name of *Allgemeines Landrecht* (general civil law), became the new Prussian code of law, ratified by Frederic William II., June 1, 1794.

CARMINE, a pigment of a brilliant scarlet color, prepared from the boiling solution of cochineal by adding alum and carbonate of potash or soda, and boiling for a few minutes. The liquid is strained, and allowed to stand for some time, when the combination of cochineal and alumina, called carmine, is deposited. Oxide of tin is also made use of to obtain a similar precipitate. The separation of the precipitate is hastened by the use of some albuminous matter, as white of egg or fish-glue, by the coagulation of which the carmine is collected. Several processes are in use for the preparation of the most beautiful carmines. That made by Madame Genette of Amsterdam is said to be of so brilliant a hue as to be almost painful to the eye. It is thus given in the *Annales de l'industrie*: Two pounds of the finest cochineal in powder are to be put into a vessel containing 6 pailfuls of boiling soft water; and the boiling is to be continued for 2 hours, when 8 ounces of pure saltpetre, and soon after 4 ounces of binoxalate of potash, are to be added. After 10 minutes the boiling is to be discontinued, and the liquor is allowed to stand for 4 hours. It is then to be drawn off with a siphon into flat glazed dishes, and left for 3 weeks. A coating of mould forms upon the surface, which is to be nicely removed in one piece; or if any fragments remain, they must be taken out with the greatest care. The liquor is again to be drawn off with a siphon, leaving the cake of carmine in the dish, when it is to be carefully dried in a clean shady place.—As carmine is desired to be used principally as *rouge*, for imitating the soft blush upon the fairest cheeks, it is an especial object to obtain it of the highest degree of perfection; and so delicate are the processes of the French that the result is affected by the condition of the weather, and the best carmine is only made on bright sunny days. Sir Humphry Davy relates an incident of an English manufacturer agreeing to pay £1,000 to a Frenchman for the secret by which the latter made so superior an article; when it appeared

that the only difference in the two modes of preparation, was that the Frenchman always selected such fine bright weather as the Englishman could not hope to command in his own country. Carmine was accidentally discovered by a Franciscan monk at Pisa, in preparing a medicine of cochineal and salt of tartar. The beautiful precipitate, however, was soon found to be much better adapted for giving a rich bloom to the cheeks of fair maidens; and hence it soon assumed an importance which it still retains. Its use is extended to the manufacture of the best red inks, to silk dyeing, to the preparation of artificial flowers, and as a pigment in water colors and miniature painting. Its high value has rendered it an object to prepare it of different degrees of purity, according to the quantity of alumina mixed with it; and it is also adulterated by mixing with it more or less of the cheaper vermilion. As the pure carmine is wholly soluble in ammonia, these ingredients are easily detected, separated, and estimated.

**CARMOE**, or **KÆRMØ**, an island of Norway, lying at the entrance of Bukke fiord, in the North sea, 21 m. long, average breadth 5 m.; pop. 6,390.

**CARMONA**, a Spanish town, pop. in 1852, 15,121, 18 m. from Seville, is a place of much antiquity, and was once strongly fortified. It stands on an isolated hill, surrounded by old Moorish walls, has venerable churches, a university of Saracenic architecture, several manufactories, and an annual fair.

**CARNAC**, a village of France, in the department of Morbihan, pop. 3,838. Near it are more than 5,000 granitic obelisks of druidical origin, which stand perpendicularly in 11 rows parallel to the coast.

**CARNATIC**, an ancient province of British India on the E. coast of the peninsula. Its limits are ill defined, but it is commonly thought to extend from Cape Comorin to lat. 16° N., and from the coast line to an average of about 80 m. inland. The province is separated into 2 parts by the eastern Ghauts, which run parallel with the coast, and which cause a considerable difference in climate between the table-land and the sea-board; the latter, in dry weather, is the hottest part of India, the thermometer sometimes standing at 180° in the shade. The rivers of the Carnatic are the Pannair, the Palair, the Coleroon, and the Vaigaru. The inhabitants are chiefly Hindoos. The Carnatic includes the cities of Madras and Pondicherry, beside the important towns of Arcot, Madura, Tanjore, Trichinopoly, Nellore, and Vellore. It was formerly included in the dominions of the nabob of Arcot, and the contentions arising from a disputed succession first brought the French and English into collision, and ended by the subjugation of the Carnatic under the British influence, which was completely effected in 1801, when the reigning nabob Azim ul Omrah transferred it to the East India company on condition of receiving a pension equal to

1/2 of the revenue, and of his chief officials being provided for. The Carnatic has as one of the wealthy provinces been the scene of endless native warfare and bloodshed, by which, whoever was victor, the unhappy cultivator suffered in the end; as each successive ruler, feeling his tenure uncertain, only cared to make revenue while the power lasted, an example which was but too closely imitated by his unscrupulous ministers and officials. The Carnatic is now included within the administration of the presidency of Madras. The principal occupation of the inhabitants is agriculture, the land being held either by Brahmins who cultivate it by hired labor, or by the farmer himself. Rice is the chief production, of which 2 crops are taken off the same ground in the year, if the facilities of irrigation admit it. Cotton is grown in favorable situations, and upon the high land in the interior of the province millet, sugar, and indigo are raised.

**CARNEADES**, a Greek philosopher of the sceptic school, considered as the founder of the so-called 8d academy, born at Cyrena, 217 B. C., died at the age of 85 or 90. Of the incidents of his life very little is known, but of his brilliant qualities as a philosopher and a rhetorician, there is abundant testimony in the works of classic authors. In Athens, at that time the metropolis of art and science, he became a student of the stoic and sceptic doctrines, especially those of Chrysippus, of whom he afterward became the most formidable opponent. He had essentially a critical mind, powerful in analysis, but weak in synthesis. While Chrysippus taught the absolute identity of human reason and the intellectual power pervading the universe, thus constructing a philosophical system which bears a strong resemblance to modern pantheism, Carneades hastened to destroy all illusions on the superhuman nature of the soul, and maintained the absolute acatalepsy, or absolute incapability of the mind to comprehend any subject beyond its own human sphere. So direct was his antagonism to the doctrines of Chrysippus, that he is said to have remarked: "Without Chrysippus there would be no Carneades." Whether it be true or not, that whenever he ventured into a philosophical debate with Chrysippus, he took a dose of hellebore to stimulate his mental faculties, his eloquence was considered so irresistible, his logic so forcible, that more than a century later Cicero said: "Him I would not care to challenge in debate, but would rather propitiate him, and implore his silence." Pierre Bayle called Carneades a destroying angel in philosophy, and said that his eloquence melted every thing like wax. One fact is related showing, indeed, that in some instances the eloquence of Carneades was dreaded like something diabolical. In 162 B. C., when he had been sent to Rome as one of 3 commissioners of the Athenian commonwealth, he undertook to give the Roman barbarians a sample of his dialectic powers. He, therefore, one day made a speech in favor of

justice, and the next day one in opposition. His arguments on either side were so convincing, and seemingly unanswerable, that the severe Cato became afraid lest the public mind should be corrupted by such an exhibition of plausible arguments for immorality and injustice as well as for morality and justice. In order to get rid of the dangerous example, Cato insisted upon a speedy settlement of the diplomatic business for which Carneades had come to Rome. In his blunt rectitude, Cato was unable to comprehend that excessive mental refinement to which the Greek philosophers had attained, and which enabled them to handle the sublimest conceptions of the soul as so many intellectual toys. In private life Carneades seems to have been very respectable, according to the moral standard of his age. The character of his philosophy, as compared with the abstract metaphysical theories of his adversaries, would seem, however, to point to more worldly propensities. That he was an active politician, appears from the fact of his having been a diplomatic agent of a country in which the closest attention to public affairs was the only road to public office. He enjoyed life, and detested that singular sublimity of sentiment which led some of his stoic opponents to commit suicide in order to dissolve their individual souls into that of the universe. When he was told that the stoic Antipater had taken poison, he exclaimed: "Has he, indeed? Why, then, it is time that I too take—" His friends started back, but Carneades, after a short pause, added, with cheerful smile; "... that I, too, take a good glass of wine." Still the enjoyment of life never lessened his philosophical zeal. It is stated that he was frequently so absorbed in meditation that he forgot to take his meals. He was not an author, so at least says Plutarch, but transmitted his doctrines to his disciples by word of mouth, like Socrates. It is to Clitomachus of Carthage, one of his disciples, that antiquity owed the preservation in writing of his doctrines.—So far as the philosophy of Carneades is known by the statement of Sextus Empiricus, its substance may be condensed thus: Every perception is a certain change or movement in a sensible being, bringing to consciousness first itself, and secondly some object without. In respect to the object, the perception is either true or false; in respect to the one who perceives, either probable or improbable. There exists no test (criterion) to decide on the truth or untruth of a perception, that is to say, on the relation which the perception bears to the object by which it is caused. There is no objective certainty, or a guaranty that real existing things are essentially reproduced by the human perception. Hence no apodictical assertion, whether affirmative or negative, is justifiable. Nay, this very assertion that there is no certainty, does not convey any certainty. But whatever the relation of human perception to reality, to man himself the mere probability, the test of which lies within the

limits of his mind, is sufficient for all practical purposes. The probability of a perception stands in proportion to the closeness with which it corresponds to a chain of other perceptions previously tested and sifted.—Thus much may be designated as the affirmative or dogmatical portion of the philosophy of Carneades; the practical portion was his criticism of the then existing philosophical systems. The force of these criticisms, which was estimated so very highly by his contemporaries, is based merely upon the supposition, not contested at that time, that the affirmations and negations of human language comprise all existing possibilities, so that if both should be refuted, a *non est* would be proven. A simple "either—or" is the whole working capital of this method of reasoning, which constituted the glory of the sophists of old. Thus, for instance, Carneades pretends to prove the non-existence of God by the following strain of reasoning: God is either a rational and sensitive being, or he is not. If he is, then he would be subject to sensations agreeable and disagreeable, to likes and dislikes; but if so, he would be a changeable being, and, as such, liable to destruction. On the other hand, if God is not a rational and sensitive being, then he could not have been the creator of reason and sensation. Again: God is either finite or infinite. If the latter, then he would be motionless, and therefore inactive; if the former, there would be something that was more than he, because limiting him. Again: God cannot be either with or without virtue. If he be without virtue, he would be wicked; but if he had virtue, he would be human, because virtue has existence only as the opposite of sin, and could not, therefore, be a property of a being in which such a contrast is out of the question.—By similar arguments Carneades gets rid of all general ideas of morality, human rights, duties, &c. But when he seems to have destroyed every thing, he suddenly turns round, concluding that all these arguments prove merely that absolute metaphysical knowledge is as unnecessary as it is impossible—that man ought to be satisfied with probabilities and expediences, which are amply sufficient to secure his well-being. Thus, after all, the net result of his scepticism, which in his time terrified so many grave philosophers, is but a snug little piece of practical business philosophy, a self-complacent smile at the fruitless efforts of those who are striving to solve the deep enigmas of divinity and humanity, or persuading themselves that they have succeeded in doing so.

**CARNEIA** (Gr. *Karneia*), a national festival of the ancient Spartans, celebrated in honor of Apollo, and in the Spartan month Carneia. The festival lasted 9 days, during which the Spartans were not allowed to enter upon a hostile campaign.

**CARNELIAN** (Lat. *cornis*, flesh), one of the numerous varieties of the quartz family of minerals. (See **AGATE**.) It is found resembling

flesh in its colors, whence its name. By exposure to the sun and baking, the colors are deepened. Together with agates, carnelians are quarried in great quantities in different parts of Hindostan, particularly in the region of Cambay, whence the name commonly applied to them all of Cambay stones. They are also brought to the lapidary workshops at this place from different parts of Guzerat, to be worked up into round and flat necklaces, beads, bracelets, armlets, seals, marbles, chess men, studs, rings, &c., which make the most important commercial item next to cloth, and give employment in their manufacture to nearly 2,000 people, in 75 large and 25 small workshops. The information relating to the quarrying and working the stones is from the accounts sent on from India with the specimens for the great exhibition in London in 1851. Between the Bowa Gore and Bowa Abbas hills, on the plain, are small mounds, in which the stones are quarried by the Bheels of the district. They sink shafts, and excavate horizontal galleries, working underground with lamps. The stones, being brought to the surface and sorted, are purchased of the miners in the village of Rutunpoor, by the contractor or his agents. When a considerable quantity is collected, a trench is dug in a field 2 feet in depth and 8 in breadth. In this a fire is made with the dung of goats and cows, and upon it earthen pots containing the stones are placed in rows. The fire is kept up from sunset to sunrise, when the chatties are removed, and the stones piled away. These once a year are carted to Nemodra, then sent down the river in canoes to Baroach, and thence in boats to Cambay. The manufacture of beads from the rough stone is thus conducted: The stones, brought to a convenient size, are chipped into a rounded form upon the point of an iron, standing inclined in the ground. Another workman then takes them, and fixing a number of equal size in wooden or bamboo clamps, rubs them on a coarse, hard polishing stone; they are then transferred to another man, who secures them in clamps, and rubs them on all their sides against a ground polishing board, smeared with a composition of emery and lac. The final polish is given by putting several hundreds or thousands of the beads into a stout leathern bag, about 2 feet long and 10 or 12 inches in diameter, with some emery dust and the carnelian powder obtained in boring the holes through the beads. The mouth of the bag is tied up, and a flat thong is bound around its centre. Two men seated at opposite ends of a room then roll it back and forth between them, keeping up the operation from 10 to 15 days, the bag being kept moistened with water. When the beads are well polished, they are passed to the workmen who bore the holes. This is done by means of a steel drill tipped with a small diamond, the work being kept wet by water dripping upon it.—Carnelian is a common mineral in many localities in the United States; but inasmuch as the working of

rough stones is not practised in this country, they are not regarded as of any value.

CARNICOBAR, the northernmost of the Nicobar islands, in the bay of Bengal. It is about 40 m. in circumference, low, densely wooded, and very fertile. A settlement was formed here by the Danes in 1760, but was soon abandoned, on account of the unhealthiness of the climate.

CARNIOLA (Ger. *Kraia*), a duchy of Austria, in the government of Laybach, kingdom of Illyria, between lat. 45° 10' and 46° 20' N., long. 13° 50' and 16° 25' E.; bounded N. by Carinthia, E. by Styria and Croatia, S. by Croatia and the district called Hungarian Littoral or Küstenland, W. by the circle of Goertz; area, 3,845 sq. m.; pop. 505,884, the bulk of whom belong to the Slavic races. It is a mountainous region, traversed by branches of the Carniolan Alps, abounding in curious grottoes, caverns, and underground passages, and presenting many snow-capped summits, several of which are about 10,000 feet high. It is neither so well watered nor so fertile as the neighboring districts of the empire, the only river of note being the Kulpa, and the lakes being mostly very small. The southern part produces fruits and a fine variety of flax; bees and silkworms are extensively reared, and in some districts, wheat, barley, and the grape are largely cultivated. With minerals, Carniola is richly gifted. Its famous quicksilver mines at Idria once produced upward of 16,000 cwt. per annum, and still yield from 3,300 to 3,500 cwt. Iron, lead, coal, marble, clays, and precious stones are also found. There are manufactures of iron, steel, fine linen, woollen, flannel, worsted stockings, lace, leather, wooden ware, &c. The exports comprise several of the above articles, together with hats, glass, wax, wine, and flour; and the imports, salt, oil, coffee, sugar, tobacco, cloths, cattle, and fruit. The inhabitants are temperate and industrious. The Lutheran reformation made great progress here at first, but was checked by vigorous efforts, and Roman Catholicism is now the predominant religion.—Carniola was subdued by the Romans at an early period, and was occupied by a Slavic tribe in the 6th century. It was Christianized in the 8th century, became a margraviate under the successors of Charlemagne, was governed alternately by the dukes of Austria and Carinthia, and in the 12th century was erected into a duchy. It was then held by the powerful dukes of Tyrol, until the extinction of that family in 1385, when it passed into the hands of the counts of Goertz, who were succeeded by the house of Austria in 1385. By the treaty of Vienna in 1809, it was ceded to France, and incorporated in the kingdom of Illyria; but restored to Austria in 1814. Carniola has been divided since 1849 into 10 districts. Laybach is the capital, and the Carniolan diet, composed of 32 members, assembles there.

CARNIVAL, a festival observed in most Roman Catholic countries immediately be-

fore the commencement of Lent, but celebrated with more parade in Rome and Venice than any other cities. Its name is doubtless derived from the Latin, *carni vale*, farewell to meat; as from Ash Wednesday, the 1st day of Lent, a strict fast is observed for 40 days. Much dispute exists as to the origin of this festival, but it has probably come down from the Saturnalia of pagan Rome, modified by the early Christians into a feast during the several days preceding the great fast of 40 days, generally supposed to have been instituted by Telesphorus, bishop of Rome, about the middle of the 2d century. The carnival has been observed with more or less enthusiasm during the course of centuries in all kingdoms over which the Roman church has held principal sway, but it appears to be most suited to the genius of the Italian people, being kept up by them with undying spirit, while in other lands it has frequently languished or fallen into utter neglect. The only relic of it remaining in England, or ever introduced into the English portions of North America, consists in the observance of Shrove Tuesday. In Paris the carnival takes place during the 5 or 6 weeks preceding Ash Wednesday, and is marked by the frequency of masked and fancy balls in private society, and at the various places of public amusement; such balls, to which the public is indiscriminately admitted, having been first permitted by the regent duke of Orleans in 1715. During the festivities, masks appear in the streets only on the Sunday, Monday, and Tuesday preceding Lent, and at *Mi-Carême* or mid-lent Thursday. On these days a number of persons in disguise, many of them masked, and exhibiting all sorts of folly, parade the streets, principally the northern Boulevards, and immense crowds in carriages, on horseback, or on foot, assemble to witness the gayeties of the scene. The carnival was prohibited in 1790, and no more celebrated until the appointment of Napoleon Bonaparte as first consul. Its restoration was a cause of great joy to the Parisians, and for some years nothing could exceed the beauty and richness of the costumes displayed upon this annual festival; but it has now lost many of its charms, and the masks are comparatively few. After parading the streets, the masks repair for the night to the various masked balls of every description, which then abound in the capital. The public masked balls take place on fixed days throughout the carnival, being given at almost all the theatres; the most select being at the opera houses, where they commence at midnight and are kept up until daybreak. A motley throng of jaded maskers of both sexes may then be seen for an hour or two about the Boulevards, and swarming in the cafes to breakfast. Citizens and strangers have the privilege of going to these balls in plain clothes and unmasked, although the ladies generally appear with masks and fancy costumes.—The procession of the *bœuf gras* (the fat ox) has for ages past been celebrated at Paris, on the Sunday and Tuesday before Lent, when the gov-

ernment prize ox, preceded by music, and accompanied by a numerous train of butchers fantastically dressed, is led through the streets. The ox is covered with tapestry, and his head adorned with laurel. Formerly the ox bore on his back a child, called *roi des bouchers* (king of the butchers), decorated with a blue scarf, and holding a sceptre in the one hand and a sword in the other. He now follows the ox in a triumphal car, but without his sword and sceptre.—The carnival in Italy is much the same in the different cities where it is celebrated; that of Venice is by no means as brilliant as in former days, and it will be therefore sufficient to describe that of Rome. It extends over the 11 days which immediately precede Ash Wednesday, though only 8 days are actually given up to its festivities, the 2 Sundays and Friday not being included, from motives of religion. The festivities are held in the Corso, and the street immediately adjoining, to which the show is confined. The Corso is about a mile long, but very narrow, being on an average only about 35 feet broad, and lined by lofty houses, nearly all of which are built with overhanging balconies, with especial reference to this spectacle; and where permanent balconies are wanting, temporary structures of wood are frequently erected. Thus persons on opposite balconies are brought within speaking distance, or near enough to exchange bouquets and sugar-plums. The street beneath is densely filled with carriages and foot passengers, and all are brought so close together as to act and react upon each other. The sport does not last through the whole of each day, but only from about 2 o'clock until dark, during the short days of February. If the weather is favorable, as much of the exhilaration of the scene depends upon sunshine, a stranger will on first beholding the carnival become madly excited and fully enter into its spirit in spite of himself, solemn as his deportment may usually be. The dull and sombre fronts of the houses seem suddenly to have put on liveries of blooming colors. Pieces of brilliant cotton, cloth, or silk, red, yellow, and blue, are hung over the balconies, while innumerable streamers of the same hues flutter in the breeze. Far as the eye can reach, the balconies are crowded with innumerable spectators, many of them beautiful and gayly dressed women. The course below is thronged with 2 rows of carriages, moving in opposite directions and filled with gay parties; while crowds of pedestrians mingle among the vehicles, who, clad in every variety of costume that ludicrous fancy can suggest, and masked, play every imaginable prank within the bounds of decency. A dozen masks will sometimes gather together on the back of a carriage, regardless of the occupants, vociferating in a leash of languages, and one and all in the street or on the balconies engage with heart and soul in pelting others far and near with flowers, bonbons, and confetti. For some time before the carnival begins flowers are brought into Rome in exhaustless profusion, and exposed for sale in

such quantity and choice as to meet the caliber of every purse; costly bouquets of hot-house flowers being ranged side by side with the wild growth of the Campagna. The bonbons are not so abundant, but still are used extensively; while the confetti, which are nothing but pellets of lime about the size of a pea, are scattered in myriads, and form quite a serious weapon of attack, especially if suddenly dashed into the face as they often are from the hand, or blown out of a tin tube. The coating flies off these confetti into lime dust, with which persons become so covered from head to foot as to resemble millers. A few years since, a young English nobleman, noted for his eccentricity and senseless prodigality with his money, was in Rome during the carnival. Hiring an apartment on the Corso, he literally choked it with bonbons and confetti, and for a single feat, filling a large barrel with these missiles, aided by his servant, he dragged it into the balcony, tipped it upon the balustrade, and watching his opportunity showered down the whole of its contents into a passing carriage. The confectionery and lime pills fell with such force, that they started a panel in the bottom of the vehicle, filled it completely, beside nearly smothering the occupants, and scaring them out of their wits by the unexpected avalanche. A complaint was entered against him, and his fun suddenly stopped by a notice from the police, that if he played such antics again, he would be obliged to quit Rome. Every day of the masquerade the Corso becomes more crowded and more animated, till on the last the number and spirit of the masks, the skirmishes of bonbons and lime dust, and the shouts and enthusiasm of all, surpass description. Of the mass which elbow one another through the crowded streets, the greater part are in their ordinary garb, though disguises are common enough not to attract any particular notice. Among the most usual masks are punchinelloes with enormous noses, and protuberant backs and stomachs; harlequins in particolored vestments, with daggers of lath; and pantaloons indulging their usual propensity for thieving by snatching bouquets from the hands of those in passing carriages. Quack doctors are numerous, with catalogues of nostrums for all imaginable diseases, and lawyers in gowns and wigs whose demeanor Portia could scarce excel. Some of the masks carry an inflated bladder on the end of a stick, with which they deal noisy but harmless blows. Beside the carriages such as are seen every day, many are put together for the occasion merely, and consist of frame-work resting upon wheels, and made to assume various shapes, such as ships or moving forests. Old dwellers in Rome compare the insignificance of the present carnival with its splendor in the past, and tell of pageants representing eastern monarchs followed by their trains of African slaves; cars of victory with laurel-crowned Cæsars; Roman processions copied from those of the ancient city; the triumph of Bacchus, surrounded by Silenus and all his crew of

drunken fauns and delirious Bacchanals, which used to parade the Corso.—Every day of the masquerade there is a race by spirited horses, but without riders. About 5 o'clock preparations begin for the running of these animals. Mounted dragoons trot up and down the Corso, the carriages are withdrawn into by-streets, and pedestrians alone are left. Meanwhile the horses which are to run have been brought to the starting-point in the Piazza del Popolo. Each one is held by his groom in a showy uniform, and they are kept within bounds until the hour for starting arrives, by a rope stretched across the Corso. So impatient are the animals, however, so fully excited by the tumult of the scene, that it is almost impossible to prevent them from leaping over the rope and dashing onward, while in their struggles they do frequently get their fore feet over, dragging their grooms after them. The horses, as before observed, have no riders, but are goaded on in the race by metal balls full of sharp points, which are fastened to their trappings, and at every motion pierce their flesh; as they feel these irritants they dash madly forward, and the faster they run the more cruelly are they goaded. Instances have occurred in which horses, discovering the cause of their torment, have stopped short in the race, but generally as soon as the cable is thrown down they rush with fury through the Corso, the crowd opening to give them a passage and closing up behind them, until they are stopped by a piece of cloth which is suspended across the street near the Venetian palace, at the Ripresa di Barberi, so called from Barbary horses being the original racers. At this point the judges are assembled to decide upon the race. Goëthe, who visited Rome in 1788, says that carriages were then allowed to remain in the Corso, and their presence rendered it so narrow that horses often dashed themselves against the wheels and were instantly killed.—Speaking of these horses, Madame de Staël, in her "Corinne," says: "They arrive with neither bridle nor saddle, their backs only covered with brilliant stuffs, and conducted by gayly dressed grooms, who manifest the most impassioned interest in their success. They place the steeds behind the barrier, and their impatience to be free is excessive. This ardor of the horses, the cries of the grooms, make at the instant of the barrier a real dramatic act. The horses dash forward, the grooms cry 'Room! room!' with indescribable transport. They accompany their steeds with gesture and voice as long as they can see them. The horses are as jealous of each other as the men. The pavement flashes fire beneath their hoofs, their manes stream upon the wind, and their desire to gain the prize, thus left to themselves, is so great that some on arrival at the goal drop dead from the fury of the race. One is astonished to see these loose horses thus animated by personal passions. They reach the Venetian palace, and it is worth while to listen to the exclamations of the

grooms over the conquering horses. He for whom the first prize had been gained, went down on his knees before his horse, thanked him, and invoked on him the blessings of St. Anthony, the patron of animals. It is generally at the close of day that the races are concluded, and then begins another kind of amusement less picturesque but very obstreperous. The windows are illuminated. The guards abandon their post to mingle themselves in the general mirth. Each one then produces a little taper called *moccio*, and seeks to extinguish those of others, and at the same time preserve his own, all the while repeating changes on the word 'kill' with amazing velocity. *Che la bella principessa sia ammazzata! Che il signore abate sia ammazzato!* (meaning literally, 'Kill the beautiful princess! kill the signor abbe!') resounds from one end of the street to the other. The crowd is now assured of safety, as no horses or carriages are allowed, and finally all is given up to dissonant tumult. Meanwhile night advances, the noise ceases by degrees, until the profoundest silence succeeds, and of this evening there remains only the idea of a confused dream which has changed every one's existence, which for a moment has caused the people to forget their toils, the learned their studies, and the nobles their idleness."

CARNIVORA (Lat. *carnis*, flesh, and *voro*, to eat), an order of mammals which feed upon flesh, as distinguished from the *herbivora*, or vegetable-feeders. This order has been divided into various groups by different authors, some including in it the *choiroptera* and *insectivora*, and others limiting it to the following 5 families, which agree in their most essential characters, viz.: *ursida*, or bears; *mustelida*, or weasels; *canida*, or dogs; *felida*, or cats; and *phocida*, or seals; the bears constituting the plantigrades, the seals the pinnigrades, and the other three the digitigrades, according as the whole foot or only the toes touch the ground, or as the extremities are modified into fin-like paddles. The *felida* are the most truly carnivorous, and constitute the type of the order; and in them the large canine teeth, sharp retractile claws, great strength and agility, indicate a special formation for the pursuit and destruction of living prey. The skeleton exhibits the modifications adapted for the manner of life, in the shape of the bones, their articulations and proportions. In the *felida* the spine is flexible, yet strong, with a large development of the lumbar portion; the ribs are narrow and far apart, the limbs long and affording the greatest freedom of motion, and the skull short and broad. In the weasels, the spine is lengthened in accordance with the habits of these prowling creatures. In the bears, the foot is wholly placed on the ground, and the shortness of the lumbar region of the spine adds to the firmness and strength of limb required in these less carnivorous animals. In the seals, the posterior limbs are extended backward into 2 horizontal fins, the anterior also serving in ad-

dition for a limited progression on land. The cranium is remarkable for the shortness and strength of its facial or tooth-bearing portion, and for the crests and large fossae for the accommodation of the powerful muscles of mastication; in the cats, the tentorium cerebelli is bony, evidently to protect the brain during the sudden movements of leaping upon their prey, and the whole bony structure is remarkably solid; the lower jaw is strong and short in proportion to the carnivorous propensity of the genus. The vertebrae of the neck are remarkable for the size of the first 2; the dorsals and the number of ribs vary from 18 (the most common) to 16; the lumbar vertebrae, always numerous in proportion to the leaping powers, vary from 4 to 7; the sacrum is composed of several vertebrae, and in the bears is remarkably broad, for the support of the body in their frequently erect position; the tail is the longest in the most active species, as in the lion and the panther. The shoulder blade is flat and broad; the clavicle, when not entirely wanting, is quite rudimentary; the humerus is arched, short, and strong; the bones of the forearm have but little motion on each other, except in the *ursida*, and the ulna is generally placed behind the radius, both of them in the seals being broad and flat: the metacarpus is much larger in the digitigrades than in the plantigrades. The retractile claws of the *felida* are described under the article CAT, in which family they are most developed. The pelvis is short, and its bones broad and flat; the thigh-bone is moderately long, and directed immediately downward, except in the seals, in which its direction is outward. The bones of the leg are generally separate; the tarsus consists of the usual 5 bones, but the tuberosity of the os calcis is quite long and strong; the inner metatarsal bone in the cats and dogs is merely rudimentary; in the weasels the inner toe is small, in the cats wanting, and in the plantigrades in the same range as the others; in the plantigrade foot every thing is arranged for slow and steady walking, in the digitigrade for leaping and tearing, and in the pinnigrade for swimming. The muscles in this order, especially of the jaws, neck, and anterior extremities, are enormously large and powerful. In the typical carnivora, the incisor teeth are small, and placed in the intermaxillary bone; the canines situated above, at the junction of the intermaxillaries with the superior maxillaries, are strong, long, and cutting, slightly curved, and admirably adapted for tearing their prey; the cheek teeth have cutting edges, the lower shutting within the upper like the blades of scissors, and are provided with sharp triangular processes; the teeth are arranged in a short space, and their action is rendered more efficacious by the shortness of the whole jaw, and by the simple, hinge-like motion of the lower jaw; in the seals, the canines are much smaller, but the cheek teeth are furnished with numerous sharp points for the purpose of holding the slip-



perry and scaly fish upon which they feed; in the bears, the jaws are much longer, and the molars are flattened and tubercular, indicating the far less carnivorous propensities of this family. The carnivora, in proportion to their approach to the typical *felida*, whose food, when swallowed, is so like their own tissues that it is ready for speedy assimilation, have a short intestinal canal; in the lion it is but 8 times the length of the body, and has very few internal folds, and a very small cæcum, while in man it is 5 times as long, in the horse 10 times, in the sheep 28 times; such is the relation between the organs, that the form of the teeth indicates the character of the intestinal canal, the armature of the feet, the mode of progression, and very nearly the habits and mode of life of an animal. The lobes of the liver vary in number from 4 in the badger to 8 in the lynx, without any apparent physiological reason; the hepatic ducts correspond in number to the lobes, and the common duct, before it enters the intestinal cavity, frequently receives a pancreatic duct; the gall-bladder is always present, and in the *ursida* is of great size; the pancreas and spleen do not differ, except in form, from these organs in other mammals; the chyle is so noted for its opacity and whiteness, that the discovery of the lacteals was made in these animals long before they were seen in man. The carnivora belong to the sub-class *gyrencephala* of Owen, in which the cerebral hemispheres are the largest developed (except in man), extending over a portion of the cerebellum and the olfactory lobes; in this arrangement they are next to the *quadrumana*, or monkeys; the hemispheres have well-marked, though simple convolutions. The organs of sense are well developed; in the diurnal carnivora, the pupil is round; in the cats it is elongated vertically, and in a very bright light almost linear, but it is round in the dark, causing the brilliant *tape-tum* of the posterior arch of the choroid to appear like a ball of fire; the large size of the mastoid process, communicating with the cavity of the tympanum, indicates considerable acuteness of the sense of hearing, necessary for animals seeking their prey during the stillness of night; the sense of smell, especially in the *canida*, is very acute, and the pituitary membrane is extended greatly by means of the complicated convolutions of the turbinated bones; the sense of taste is probably not very acute, and the tongue of the cats is covered in its middle portion with horny spines, well calculated to tear the flesh from bones. The kidneys in some families, as in the bears and seals, are much subdivided, resembling a bunch of grapes; in the cats the divisions are hardly perceptible. In the civets and allied genera, there are glandular follicles, which secrete a peculiar odorous substance, sometimes exceedingly fetid; the glands are usually situated near the anus, and the excretory ducts open between the rectum and the genital organs. The *testes* are generally pendulous and external, but in the seals they

remain permanently within the abdominal cavity; the *vesicula seminales* do not exist, but organs resembling the prostate and Cowper's glands are generally found; in almost all there is a bone in the penis, the hyena forming an exception, it is said; the teats are abdominal, ranging from 4 in the lioness to 10 in the bitch; the placenta is zonular, surrounding the fetus.—The geographical distribution of the carnivora is very extensive, but the largest and most destructive species are confined to the tropics of the old world; the tiger is limited to Asia, the lion to Asia and Africa, the cougar to America; the largest bears frequent the arctic regions, and the largest seals the antarctic waters. The carnivora fulfil an important purpose in the economy of nature, by keeping in check the increase of the herbivorous animals, whose countless numbers would otherwise destroy vegetation, and thus cause their own and a general destruction. Cuvier associated, under the name *canassiers*, the cheiroptera, insectivora, carnivora, and marsupials; excluding the latter, which form a sub-class by themselves, many more recent authors adopt a somewhat similar classification. Prof. Agassiz, in his recent "Essay on Classification," divides mammals into 8 orders, *marsupialia*, *herbivora*, and *carnivora*, the last the highest in the scale. Prof. Owen divides his sub-class *gyrencephala* into the 3 primary divisions of *mutilata* (including the cetaceans), *ungulata* (pachyderms and ruminants), and *unguiculata* (carnivora and the monkeys); the last being the highest in development; in the *unguiculata*, the sense of touch is more highly developed through the greater number and mobility of the digits, and the smaller extent of covering with horny matter; in the carnivora, he places the digitigrades at the head, then the plantigrades, and lastly, the pinnigrades; and among the digitigrades the *felida* are placed highest, whose retractile claws and long and narrow hind foot make them the most perfect and typical form of the carnivora.

CARNOCHAN, JOHN MURRAY, an American surgeon, born in Savannah, Ga., in 1817, descended on the mother's side from Gen. Putnam, celebrated in the war of independence. He was yet a boy when he was removed to Edinburgh, the capital of his father's native land. After graduating in the high school and university of that city, he returned to the United States, and entered the office of Dr. Valentine Mott, of New York, as a student of medicine. After taking his degree, he again visited Europe, and passed several years in attendance upon the clinical lectures of Paris, London, and Edinburgh. In 1847 he fixed his residence in New York, and commenced the practice of the profession, in which numerous brilliant and original achievements have gained for him an honorable name, both at home and abroad. In 1851 he was appointed surgeon-in-chief of the New York state emigrant hospital, a station he still holds. In 1853 he successfully treated a case of *elephantiasis Arabum* by ligature of the femoral artery. In

the same year, he performed the operation of amputating the entire lower jaw, with disarticulation of both condyles. In 1854 he exsected the entire ulna, saving the arm, with its functions unimpaired; and subsequently, in another case, removed the entire radius, with equal success. In 1856 he performed, for the first time, one of the most startling and original operations on record, in exsecting, for neuralgia, the entire trunk of the 2d branch of the 5th pair of nerves, from the infra-orbital foramen, as far as the *foramen rotundum* at the base of the skull. Amputation at the hip-joint he has performed 4 times. Since 1851, Dr. Carnochan has been professor of the principles and operations of surgery in the New York medical college, and has published his lectures on partial amputations of the foot, lithotomy, and lithotrity, and also a "Treatise on Congenital Dislocations" (New York, 1850); "Contributions to Operative Surgery" (Philadelphia); and has translated Sedillot's *Traité de médecine opératoire, bandages, et appareils*, and Karl Rokitan-sky's *Handbuch der pathologischen Anatomie* into English.

CARNOT, LAZARE NICOLAS MARGUERITE, a French statesman and tactician, born May 18, 1753, at Nolay, Burgundy, died Aug. 2, 1823, in Magdeburg, Prussia. When only 18 he was made a 2d lieutenant of engineers; 2 years later he was 1st lieutenant; in 1788 captain, in which year he wrote an essay on aerial navigation and an eulogy of Vauban, which brought him into controversy with Gen. Montalembert, who caused him to be arrested and confined in the Bastille. He had also published about the same time an *Essai sur les machines*, in which he demonstrated a new theorem upon loss of motive power, which Arago has declared to be one of the greatest and most useful discoveries of the age. He was entirely absorbed in these studies when the revolution commenced. He did not at first actively participate in it, although he submitted to the national assembly a memoir with a view to a restoration of the finances. In 1791 he was elected deputy to the legislative assembly by the department of Pas de Calais. He devoted himself assiduously to his new duties. As a member of the committee on military affairs, he greatly contributed to the adoption of the decree ordering a large addition of forces to the national guard; and it was in accordance with his report that, for want of muskets, the new guards were armed with pikes. The efficacy of these weapons was soon tried on Aug. 10, 1792, in the assault against the Tuileries. About the same time he was re-elected to the convention, and was present on the trial of Louis XVI.; his vote was recorded in these words: "In my opinion, both justice and good policy require the death of Louis; but I must confess that never a duty so heavily weighed on my heart as the one that is now incumbent upon me." He was neither a Girondist nor a Montagnard, and however aggrieved at the fall of the former party, he did not hesitate to

side with the men to whose hands the destinies of the republic were henceforth committed. In Aug. 1793, he entered the committee of public safety. The armies were disorganized and unruly; there were no funds, no provisions; enemies had invaded France in every direction; the insurgent Vendéans were successful; the rebellious city of Lyons kept at bay the besieging army; and Toulon had been just delivered by treason into the hands of the English. Carnot went boldly to work, and succeeded so well, that his fellow-citizens declared emphatically that he had "organized victory." He proved himself to be not only a skilful administrator, but a tactician of the highest ability. The 14 armies created by the rising *en masse* of the nation, coöperated under his orders in the execution of a well-devised plan; they were placed under the command of new generals able to understand the projects of the directing mind, and defeats were soon succeeded by brilliant victories. Carnot sometimes repaired in person to the weakest or most exposed point to watch the operations, and to inspire the troops with his ardor and confidence. Thus, by the energy and wisdom of his measures, as well as by the influence of his example, he contributed to the victory of Watignies, which forced the prince of Coburg to retreat. Toulon was now retaken from the English; the Vendéans were defeated and almost destroyed, and the Austrian army was expelled from France. As a member of the committee of public safety, Carnot must bear his part of the responsibility for the bloody measures which were then adopted; but it may be said in his exculpation that, being entirely absorbed in the performance of his especial duties, he had no time to give attention to what was going on around him. He left the interior administration in the hands of his colleagues, and was scarcely aware of the atrocities which were perpetrated in the name of the committee. Thus, he did not participate in the revolution of the 9th Thermidor; but after the fall of Robespierre he energetically defended his colleagues, Collot d'Herbois, Billaud-Varennes, and Barere, charged with being the accomplices of the man in whose overthrow they had been instrumental. Carnot was on the point of being arrested, and was only saved by Bourdon de l'Oise exclaiming: "This is the man who has organized victory." After the 1st Prairial (1795), he was again threatened with impeachment, but was protected by the feelings of respect and gratitude which his great services inspired. He was obliged, however, to leave the committee and give up the management of war affairs, which he had held for nearly 2 years. On the establishment of the directory, he was elected representative by 14 departments at once, and took his seat in the council of 500. Being appointed one of the 5 directors, he resumed his previous office and planned the admirable campaign of 1796, the success of which was secured in Italy by Bona-

parts. But the directory was threatened by factions, and especially by the royalists; 3 of its members concluded that the only means of saving the republican government was a *coup d'état*; they performed it on the 18th Fructidor, and although Carnot was far from being a royalist, he was condemned to transportation. He avoided the sentence by concealing himself for a while in Paris, then escaping to Switzerland, and afterward to Germany, where he wrote a memoir to vindicate his conduct. After the 18th Brumaire he returned to France, and was appointed minister of war in 1800; but being unable to agree with the new master, he promptly resigned. In 1802 he was elected to the tribunate, where he voted against the establishment of the legion of honor, the consulate for life, and especially the empire. The speech he delivered on this last occasion breathed the most generous spirit of independence, and caused a great sensation. On the suppression of the tribunate he retired to private life, and resumed his scientific pursuits. But in Jan. 1814, when disasters were coming on France and the emperor, he addressed a noble letter to Napoleon, proffering his services: "I staid away as long as you were prosperous; now that misfortune has come, I do not hesitate to place at your disposal what little ability I may still possess." Napoleon at once intrusted him with the command of Antwerp. For years the supreme director of military affairs, he had gained no advancement in the army, and was still merely a major; Napoleon had to promote him to the rank of general, passing him through all the intermediate degrees at once. He gloriously defended Antwerp until the treaty of Paris, April, 1814, and returned to the capital, where he published a *Mémoire au roi*, full of liberal opinions and wise advice. On Napoleon's return from Elba, he appointed Carnot minister of the interior, which post he held for 3 months, during which he unwillingly received the title of count of the empire, but never bore it. After the rout of Waterloo he almost alone preserved his self-possession, and suggested energetic measures which were not adopted. "I have known you too late," said Napoleon on his departure. A member of the provisional government, his honesty was not a match for Fouché's shrewdness. On the second restoration he was again outlawed, and retired to Warsaw, then repaired to Magdeburg, where he died. His writings are numerous; beside his various political papers, he has left disquisitions of great interest on several points of science, especially on fortification. A full and excellent biography of Carnot was published by Arago (Paris 1887).—LAZARE HIPPOLYTE, a French statesman, the second son of the preceding, born at St. Omer, April 6, 1801. He was of liberal opinions, became a disciple of St. Simon, and wrote the *Exposition générale de la doctrine Saint Simonienne*, the authorship of which was, with his consent, ascribed to Bazard. But as soon as St. Simonism

assumed the form of a religious creed, Carnot parted with his friends, and became a journalist, and the chief editor of the *Revue encyclopédique*. He was also intrusted with the publication of Grégoire's and Barère's *Mémoires*. He was elected to the chamber of deputies in 1839, and re-elected in 1842 and 1846. After the revolution of Feb. 1848, he was minister of public instruction until July 5, and improved, as such, the condition of the teachers, rendered the normal schools free, and established free lectures. In 1848 he was elected to the constituent, and March 10, 1850 to the legislative assembly. After the *coup d'état* of Dec. 1851, he left France; during his absence, he was elected a member of the *corps législatif*, but refused to take the oath. He was re-elected in 1857, but again refused to serve.

CARNUNTUM, an ancient Celtic town in the N. part of Pannonia, on the Danube, near where Hainburg now stands. It was an important military pass under the Romans, who made it at one time a station for their fleet on the Danube, and raised it to the position of a *municipium* according to some inscriptions, of a colony according to others. During the wars with the Marcomanni and Quadi it was for 8 years the residence of Marcus Aurelius, who here composed a part of his "Meditations." It was destroyed by the Germans in the 4th century, was afterward rebuilt, became once more a Roman military station, and was finally destroyed during the wars with the Magyars in the middle ages. Its remains are very extensive.

CARO, ANNIBALE, an Italian poet, born at Citta Nuova in 1507, died in 1566. In 1543 he entered the service of Pietro Ludovico Farnese, who 3 years later was made duke of Parma, and who sent him several times on missions to the emperor Charles V. When the duke was assassinated at Piacenza, Caro fled to Parma, where he was kindly received by the new duke, Ottavio Farnese. He then became secretary successively to the 2 brothers of Ottavio, the cardinals Rannuccio and Alessandro. He died while in the service of the latter, having been his secretary for 18 years. His works were not printed till after his death, some of them as late as 1583, and a volume of his letters, edited with notes by Mazzuchelli, in 1829.

CAROL (It. *carola*, a song of joy), originally a song sung as an accompaniment to dancing, but which in England serves to designate a ballad for Christmas.

CAROLAN, TURLOUGH, an Irish musical genius born in the county of Westmeath, in the latter part of the 17th century, died in 1738. Having lost his sight when a child, he studied the harp, and in after life not only maintained himself thereby, but even became famous.

CAROLINA, NORTH, one of the original states of the American union, situated between lat. 33° 53' and 36° 33' N., and long. 75° 25' and 84° 30' W., having an extreme length of 420 m. from E. to W., and an extreme breadth of 180 m. from N. to S.; area about 45,000 sq.

m., or 28,800,000 acres. It is bounded N. by Virginia, on the line of 36° 33', W. by Tennessee, S. by Georgia, South Carolina, and the Atlantic, and E. by the Atlantic. It is divided into 83 counties, as follows: Alamance, Alexander, Anson, Ashe, Beaufort, Bertie, Bladen, Brunswick, Buncombe, Burke, Cabarrus, Caldwell, Camden, Carteret, Caswell, Catawba, Chatham, Cherokee, Chowan, Cleveland, Columbus, Craven, Cumberland, Currituck, Davidson, Davie, Duplin, Edgecombe, Forsyth, Franklin, Gaston, Gates, Granville, Greene, Guilford, Halifax, Haywood, Henderson, Hertford, Hyde, Iredell, Jackson, Johnston, Jones, Lenoir, Lincoln, McDowell, Macon, Madison, Martin, Mecklenburg, Montgomery, Moore, Nash, New Hanover, Northampton, Onslow, Orange, Pasquotank, Perquimans, Person, Pitt, Polk, Randolph, Richmond, Robeson, Rockingham, Rowan, Rutherford, Sampson, Stanley, Stokes, Surry, Tyrrel, Union, Wake, Warren, Washington, Watauga, Wayne, Wilkes, Yadkin, Yancey.—North Carolina has no very populous towns. The chief seaport and largest city in the state is Wilmington (originally called Newton, but changed in compliment to the earl of Wilmington), situated in New Hanover co., on the E. side of Cape Fear river, about 85 m. from the Atlantic, 148 from Raleigh; pop. in 1850, 7,264, probably 10,000 now. It is a place of considerable business activity. Raleigh, the political capital of the state, named in honor of Sir Walter Raleigh, is a handsome town, situated in Wake co., near the Neuse river; pop. in 1850, 4,518. Newbern, formerly the capital of the state, is a thriving town, situated at the confluence of the Neuse and Trent rivers, about 100 m. E. S. E. from Raleigh, in Craven co. is one of the oldest towns in the state, and is a place of considerable commercial importance; pop. in 1850, 4,681. Fayetteville is a flourishing and ancient town, situated on the Cape Fear river, at the head of steamboat navigation, in Cumberland co., about 60 m. S. by W. from Raleigh, and is an active business place; pop. in 1853, 7,000. Beaufort is a seaport on Bogue sound, in Carteret co., 168 m. from Raleigh, has a spacious and deep harbor, and engages in the coasting trade; pop. in 1853, 2,000. Charlotte is situated between the Sugar and Little Sugar creeks in the gold-mining county of Mecklenburg; pop. in 1853, 2,500. Edenton, the county town of Chowan co., at the head of Eden bay, is a place of considerable shipping; pop. in 1850, 1,607. Elizabeth City, the capital of Pasquotank co., is on the Pasquotank river, 20 m. above its confluence with Albemarle sound, and 215 m. N. E. from Raleigh, and communicates with Hampton roads by means of the Dismal Swamp canal; pop. in 1853, 2,824. Greenville, the capital of Pitt co., is a thriving place of 1,150 inhabitants, and is situated 103 m. E. of Raleigh. Halifax, the capital of Halifax co., beautifully situated on the west bank of the Roanoke river, 87 m. from Raleigh, is a place of considerable trade

in cotton, corn, and lumber. Oxford, the capital of Granville co., 86 m. N. of Raleigh, is a town of considerable business activity; pop. in 1853, 2,500. Salisbury is one of the principal towns in the interior of the state, and one of the oldest; pop. 4,000 to 5,000. Asheville, in Buncombe co., is the principal town west of the mountains; pop. in 1853, 1,000. The other towns worthy of mention, and containing populations ranging from 500 to 1,500, are Elizabethtown, the capital of Bladen co., on Cape Fear river, 99 m. from Raleigh; Greensborough, in Guilford co., named in compliment to Gen. Greene, is a flourishing manufacturing town; Lincolnton, Lincoln co., contains several cotton and paper mills, and iron works; Plymouth, Washington co., on the Roanoke, has a large business in the lumber trade and the building of coasting vessels; Smithville, on the Cape Fear river in Brunswick co., has a good harbor, and is a place of considerable trade; Tarborough, on the Tar river, in Edgecombe co.; Washington, in Beaufort co., on the Tar river, near its confluence with Pamlico river, has a considerable coasting trade and contains the usual county buildings, and 3 churches.—The population of North Carolina, according to the decennial enumerations from 1790 to 1850 inclusive, has been as follows:

Census.	Whites.	Slaves.	Free Colored.	Total Population.
1790	283,204	100,573	4,975	388,751
1800	337,764	133,296	7,043	478,108
1810	376,410	163,394	10,266	555,500
1820	419,200	205,017	14,613	638,829
1830	472,843	245,601	19,542	737,987
1840	484,870	245,817	22,732	753,419
1850	553,023	233,543	27,463	869,038

The federal representative population (all free persons and  $\frac{3}{4}$  of the slaves) is 753,619. Of the white population in 1850, 278,025 were males, and 280,003 females; 15,851 were less than 1 year of age; under 5 years, 85,652; 5 and under 10, 80,200; 10 and under 15, 73,299; 15 and under 20, 61,955; 20 and under 30, 95,648; 30 and under 40, 61,093; 40 and under 50, 42,237; 50 and under 60, 27,899; 60 and under 70, 15,576; 70 and under 80, 7,241; 80 and under 90, 2,190; 90 and under 100, 351; 100 and upward, 61; unknown, 126. The returns show 389 as deaf and dumb; 379 as blind; 467 insane, and 615 idiotic. Born in the state, 529,433; in other states of the Union 20,784, of whom 10,838 were born in Virginia, 4,420 in South Carolina, and 2,087 in Tennessee; in foreign countries, 2,565; unknown, 196. Of the slaves, 144,581 were males, and 143,967 females, and 164 were over 100 years of age. There are 28,308 slaveholders in the state, of whom 1,204 own each 1 slave; 9,668 own 1 and under 5; 8,129, 5 and under 10; 5,898, 10 and under 20; 2,828, 20 and under 30; 485, 30 and under 100; 76, 100 and under 200; 12, 200 and under 300; 8, 300 and under 500. The number of dwellings occupied by white and free colored was 104,996; number of families, 105,451. The number of deaths in the state during the year 1850 was

10,357; births for the same period, 16,648; marriages, 5,275. The occupations of the free male population over 15 years of age in 1850 were: commerce, trade, manufactures, mechanic arts and mining, 20,618, of whom 12,444 were employed in manufacturing establishments; agriculture, 81,982; labor not agricultural, 28,560; sea and river navigation, 1,659; law, medicine, and divinity, 2,268; other pursuits requiring education, 3,447; government civil service, 570; domestic servants, 46; other occupations, 247; total, 189,387. There were 1,931 paupers in the state, who were supported at an annual cost of \$60,085. The number of persons convicted of crimes of various grades during the year 1850, was 634.—The rivers of North Carolina are numerous, but in consequence of shifting sand-bars at their mouths, and of rapids in their descent from the hilly regions to the low country, they are not generally well adapted to purposes of navigation. Cape Fear river, the most important stream lying wholly within the state, is formed by the junction of the Haw and Deep rivers, which rise in the N. part of the state, and unite in the S. E. corner of Chatham co. The Cape Fear follows a zigzag course, the general direction being a little E. of S., for about 250 m., and empties into the Atlantic near Cape Fear. It is navigable for vessels drawing 12 feet of water up to Wilmington, 84 m., and for sloops and small boats to Fayetteville, 120 m. from its mouth. The Roanoke has its source in the S. part of Virginia, where it is formed by the confluence of the Dan and Staunton rivers, passes into North Carolina in Warren co., and taking a serpentine course with a general S. E. direction, empties into Albemarle sound. It is 150 m. long, navigable for small sea vessels for 80 m. from its mouth, and for steamboats 120 m. to Halifax. By means of a canal round the falls, very small boats are able to ascend to the Dan and Staunton. The Neuse river rises in the N. part of the state, takes a circuitous course in a general S. E. direction, and empties into Pamlico sound. Commencing a short distance above Newbern, it gradually spreads out into a lagoon or semi-circular bay. It is navigable for boats up to Waynesborough, 120 m. from the sound. The Tar river also rises in the N. part of the state, between the Neuse and Roanoke, and with a course generally similar to those rivers, empties into the Pamlico river and thence into Pamlico sound, and is navigable for steamboats to Tarborough, 100 m. The Chowan rises in Virginia, and with a course a little E. of S. empties into Albemarle sound. It is navigable for 75 m. Among the other rivers worthy of mention are the Yadkin and Catawba, which rise in the W. part of the state, and running S. reach the Atlantic through South Carolina.—North Carolina has an extensive coast line, which, commencing at Little River inlet, on the borders of South Carolina, runs nearly E. to Cape Fear, thence N. E. to Cape Lookout, thence in the same general direction to Cape Hatteras, and

thence N. to the Virginia line, a distance of nearly 400 m. About midway between Cape Fear and Cape Hatteras is Cape Lookout. Two open bays, Onslow and Raleigh, are formed by these capes. Along the whole length of the coast are sandy, barren, desert islands, ranging from  $\frac{1}{2}$  m. to 3 m. in width, traversed by numerous inlets, which, with few exceptions, are not navigable. From these islands shoals extend far into the sea, which render the navigation of this coast exceedingly dangerous. Cape Hatteras forms the headland of the dangerous triangular island beach which separates Pamlico sound from the ocean. The dangerous navigation in the vicinity of Capes Fear and Lookout is sufficiently indicated by the names of those points. A series of narrow, shallow lagoons, filled with constantly changing sand-bars, extend all along the coast south of Cape Lookout between the mainland and the sand islands: In the N. E. part of the state, above Cape Lookout, are 2 extensive sounds, Pamlico and Albemarle, and one of lesser magnitude, Currituck, which are cut off from the ocean by the islands or sand bank before referred to. Pamlico sound, which is the most S., extends from S. W. to N. E. 86 m., and is from 10 to 20 m. in width, with a depth of 20 feet, and terminates westwardly in the wide bays of the Neuse and Pamlico rivers. There are a number of shoals within this sound. On the N. it connects with Albemarle and Currituck sounds, and on the S. E. with Raleigh bay by Ocracoke inlet, the only navigable inlet N. of Cape Lookout. Albemarle sound, which is 60 m. in length, and from 4 to 15 broad, extends W. into the main land, and is not connected with the ocean except through Pamlico sound. Its waters are nearly fresh and not affected by the tides. It sends off a number of branches, or little bays, on either side, which extend from 10 to 15 m. inland. Currituck sound extends N. from the mouth of Albemarle some 50 m., passing beyond the limits of North Carolina into Virginia. It is from 2 to 10 m. in width, and runs parallel with the coast, from which it is cut off, like Pamlico, by narrow sand islands. It connects with the ocean only through Pamlico sound.—From 50 to 80 m. inland from the seacoast, and including the turpentine region, the country is level and abounds in swamps and marshes; the streams are sluggish and muddy, and the land sandy and barren, except along the banks of the streams, where it is very fertile, producing good crops of rice, cotton, tobacco, and maize. The Great Dismal swamp, of which an account is given in the article *Boa*, extends N. from Albemarle sound into Virginia; area 150,000 acres. Between Albemarle and Pamlico sounds is Alligator or Little Dismal swamp, which is about as large as the other. Further S. are Catfish, Green, Gum, and other swamps, similar in character to those already mentioned. Within these swamps are a number of small lakes. It is estimated that the swamps of the state altogether cover 3,000,000 acres.

Parts of the Little Dismal swamp have been drained so as to make valuable rice and grain lands. "Of this swamp land," says De Bow, "a considerable quantity may be drained, or reclaimed by embankment, by which means it would become fitted for the production not only of rice, but also maize, cotton, and tobacco." Advancing further into the interior, the aspect of the country is quite changed. "At a distance of 60 or 70 m. from the coast," says Williamson, "the land begins to rise into small hills, stones appear on the surface, and the streams ripple in their course. As we advance a little further westward, we find all the variety of hills and dales that may consist with a fertile country fit for cultivation." West of the pitch pine region, where we reach the falls or rapids of the streams, the soil improves, producing wheat, rye, barley, oats, flax, &c. Still further W. beyond the Yadkin and Catawba rivers is an elevated region forming part of the great table-land of the United States, from 1,000 to 2,000 feet above the level of the sea; and still beyond this plateau the Alleghany mountains traverse the state from N. E. to S. W., reaching here their greatest altitude. The mountainous regions of the state form very good grazing lands. (See APPALACHIAN MOUNTAINS and BLACK MOUNTAINS.)—According to the recent survey and report of Professor Emmons, North Carolina is geologically divided into 3 nearly parallel belts or zones, the first or eastern comprising the level sandy country along the coast, and extending back to the falls of Roanoke at Weldon, and to the first or lowest falls of all the other rivers. Beyond this is the midland zone, bounded W. by the line which skirts the outliers of the Blue Ridge. The 3d comprehends the western and mountainous part of the state. The systems of rocks found in North Carolina, are the recent and tertiary, cretaceous, new red sandstone, permian, metamorphic, and igneous. The rocks of the lower belt are tertiary or cretaceous, and contain no metals, except the earthy ores of iron and manganese. The metamorphic rocks associated with granitic occupy the midland counties in part, and the extreme western border, and contain the most important repositories of the ores. The granite formations compose 2 continuous belts, which traverse the state in a N. E. and S. W. direction. Raleigh is situated on the easterly belt, which is from 20 to 25 m. wide. The granite in this belt is generally of a light gray color, and composed of quartz, feldspar, and a small quantity of mica, feldspar prevailing. It furnishes very good building stone, but no metallic veins. The western belt, on which Salisbury is located, is from 10 to 14 m. wide, and differs from the eastern by hornblende taking the place of mica. The rock is frequently soft and entirely decomposed, but portions of it contain good building material, and unlike the eastern belt is traversed by numerous metallic veins and trap dikes. A number of gold mines, some of which produce copper,

also are situated on this belt. Buhrstone of good quality abounds in the midland counties, particularly in Montgomery. Agalmatolite, known as the figure stone of the Chinese, is found on Deep river, also near Troy, Montgomery co., and in some other places. Gold is extensively distributed through the hilly and mountainous portions of the state, and belongs chiefly to 4 different geological positions, viz.: loose quartz grits beneath the surface soil; stratified layers contemporaneous with the rock; in connection with seams and joints of the rocks; and in regular veins, associated with quartz and the sulphurets of iron and copper. The gold-mining business has been carried on to a considerable extent in the state for a quarter of a century or more, the regular veins proving the most productive and permanent, of which the most celebrated are those of the Gold Hill mines in Rowan co., which were discovered in 1842, since which time to 1856 they have produced about \$2,000,000 worth. (See GOLD.) There are other regular veins, which have been worked sometimes with great success, in Davidson, Cabarrus, Stanley, Montgomery, and Mecklenburg cos. Irregular veins and surface gold are also found in the same counties to some extent, and in Catawba, Randolph, Union, and Franklin cos. Many remarkable specimens were found in the vicinity of the Reed mine in Cabarrus co. long before the vein was opened, one weighing 28 lbs. as long ago as 1808. Many of the mines which had once proved productive have since been abandoned. The most important mineral productions of the state are iron and coal, which are found in great abundance on the Deep and Dan rivers. The iron ores of the state embrace the hematites, and the specular and magnetic ores. They are, however, nowhere worked to great extent. The coal measures of Deep river, in Chatham and Moore cos., are traced to a length of about 80 m. The coal is bituminous and semi-bituminous, of good quality. There are also extensive beds of semi-bituminous coal on the Dan river, in Rockingham and Stokes cos. Graphite is found in Wake co. A belt of beautiful porphyry extends 7 or 8 miles N. E. from Jones Falls. Copper ore has been found in various parts of the state, and various attempts have been made to work it, the most persistent and hopeful being at the North Carolina copper mine in Guilford co., which yields pyritous copper. The Washington silver mine, Davidson co., has been worked for a number of years. It produces ores of a variety of metals, but they are difficult to treat metallurgically, and have not proved sufficiently rich to be remunerative. Steatite, or soap-stone, is common in several of the midland counties.—The forest trees of the upland are oak, hickory, ash, walnut, and lime; in the low country, pine, and in the swamps, cedar, cypress, maple, oak, poplar, with an undergrowth of vines. Among the fruits are apples, pears, peaches, plums, cherries, grapes, and strawberries.—Among the curiosities of the state are the

Black and other mountains, elsewhere noticed; the Swannanoa gap, a deep pass in the mountains between Morgantown and Asheville; the Catawba Falls near by; the warm springs of Buncombe co., Painted rock, and a curious rock called "the Chimneya," in the same vicinity; the Gingercake rock in Burke co., a curious pile of stone on a rocky eminence, in the form of an inverted pyramid, commanding a fine view of a ravine from 800 to 1,200 feet deep. The mountainous regions of North Carolina, abound in grand and picturesque scenery.—The climate of the state is as varied as its surface and products. In the low country the atmosphere is hot and humid, and in the mountainous region it is cool and dry. In the interior it partakes somewhat of each extreme, according to locality. The mean temperature of Raleigh for the year is 60°.—It will be seen by statistics noticed elsewhere that the people of North Carolina are chiefly occupied in agricultural pursuits, though commerce, manufactures, and mining are carried on to some extent. The most important branch of manufacturing is that of spirits of turpentine, which is produced by distillation from crude turpentine, or the sap of the pine tree, the *pinus palustris*, a long-leaved pine yielding the sap more freely than any other variety of the pine family. There is an immense extent of territory in North Carolina covered by this species of pine, extending from a point near the line of Virginia across the entire state, and indeed beyond the state to the gulf of Mexico, and varying in width from 30 to 80 m. This belt of land is situated between the swampy country along the coast and the hilly region of the interior, and consists mainly of a level, sandy barren, so unproductive that few of the proprietors grow as much grain as they require for their own consumption. Occasionally, however, the ground is undulating, and in some places low and wet, where a mixture of deciduous trees and occasional veins of clay are found. Although the "piny woods," as the natives call the turpentine forests, have been settled by Anglo-Saxons about as long as any portion of the United States, yet the roads are very poor, being the merest openings through the woods, and generally without bridges across the streams. The pine trees which cover this tract are from 8 to 18 inches in diameter, with straight trunks which run up 25 to 80 feet without a limb, at which height their evergreen foliage forms a canopy so dense as to nearly shut out the light of the sky. The turpentine is procured by cutting boxes or pockets in the trees near the ground, with a long, narrow-bladed axe made for the purpose. These boxes hold from 1 to 8 pints, and are formed by giving the axe a downward stroke, the lower lip of the box being horizontal, and the upper arched, while the bottom is from 3 to 4 inches below the lower lip. From 1 to 3 boxes are made in each tree, according to its size. The sap runs only in warm weather. The boxes are cut from November to

March, one man cutting from 50 to 100 per day. The sap begins to flow freely about the middle of March, and is collected from the boxes by means of a peculiar ladle, and deposited in barrels. The sap soon congeals so as partially to close the cellular tissues of the wood, so that in order to renew the flow, new surface must be exposed once in 8 or 10 days, which is done by taking off a thin shaving from above the box. This hacking process is carried on from year to year, until in some of the older pineries the axe marks are extended so high up the trunks that ladders are used in the further scarifications. When the trees are so extensively hacked, a large proportion of the sap congeals before reaching the boxes and adheres to the trees. This gum is occasionally scraped off and put into barrels, and is known in the market as "scrape," being of an inferior quality, and worth only half as much as that taken from the boxes, which is called "dip." Considerable quantities of crude turpentine are shipped to the N. and distilled; but the principal proportion is distilled in the state, the larger proprietors of turpentine forests having stills of their own, to whom the smaller ones sell their product in its crude state. The stills used are not essentially different from the ardent spirit stills in common use, have a capacity of from 5 to 20 bbls., and run through 2 batches a day; i. e. a 20 bbl. still runs 40 bbls. of sap, producing about 6 bbls. of spirits of turpentine, and 23 bbls. of rosin. When the spirits of turpentine are drawn off, the residuum, which has the appearance of dirty molasses, forms the rosin of commerce, an article not in sufficient demand to bear long land transportation; so that, with the exception of those distilleries near railroads or navigable streams, the rosin runs to waste, and remains in congealed pools of thousands of barrels, where "its appearance," says Olmsted, "is very beautiful, firm, and glare, varying in color, and glistening like polished porphyry." When the rosin is to be saved, it is drawn off into vats of water by which the chips and rubbish contained in the crude turpentine are separated from the rosin, which is barrelled for market. Turpentine will not pay for wagon transportation more than 30 miles. The turpentine lands are valued at from \$2 to \$20 per acre, and from 500 to 1,000 trees grow upon an acre, containing, on an average, 2,000 boxes, and producing from 12 to 16 bbls. of turpentine, or 2 bbls. of spirits and 8 of rosin. A turpentine forest, with ordinary treatment, will last 50 years; the trees are then felled, cut up, and roasted, or charred, in kilns, producing tar, of which pitch is a concentration obtained by boiling. The long-leaved pine is of slow growth, the rings on a stump of this variety, 7 inches in diameter, indicating an age of 85 years. After the removal of these trees, a second growth of bastard pine starts up rapidly in its place, but is of little or no value either for turpentine or timber. The labor in the turpentine forests is

chiefly performed by slaves, whose wages, when hired, are about \$120 per annum, with board and clothing. The turpentine business is regarded as favorable to health and longevity, and, according to De Bow, is generally very profitable to the proprietors. Exact statistics of the produce of the turpentine forests are not attainable. De Bow, in his "Resources of the South," estimates the annual product of North Carolina at 800,000 bbls., of which about 200,000 are shipped to northern ports in a crude condition, and the remainder distilled in the state. The estimated value to the makers is from \$1,700,000 to \$2,000,000. From 4,000 to 5,000 laborers are engaged in the business, and it is supposed that 8 times as many more are mainly supported by the proceeds of the sale of turpentine. There are about 150 stills in the state, costing, on an average, \$1,500 each, and showing an expenditure of \$225,000 in preparations for the distilling business. The census of 1850 returns 20,996,983 acres of farming lands in the state, of which 5,453,975 acres were improved, and 15,543,008 unimproved. There were 56,968 farms and plantations in the state, averaging 369 acres each; aggregate cash value \$67,891,766; value of farming implements and machinery, \$3,981,532; average value of farms, \$1,192; average value of farming implements and machinery, \$69. The average productiveness of the state per acre is: wheat, 7 bushels; rye, 15; maize, 17; oats, 10; potatoes, 65. Cotton plantations producing 6 bales and upward, 2,827; rice plantations producing 20,000 lbs. and upward, 25. The cotton fields are principally in Anson, Richmond, and other counties along the southern border. The rice plantations are mainly on Cape Fear and Chowan rivers, and the lower part of Roanoke. The farms of the state in 1850 were stocked with 148,693 horses, 25,259 asses and mules, 221,799 milch cows, 27,809 working oxen, 484,402 other cattle, 595,249 sheep, and 1,812,813 swine; total value of live stock, \$17,717,647; of animals slaughtered, \$5,767,866. The wheat product was 2,180,102 bushels; rye, 229,568 bush.; oats, 4,052,078; maize, 27,941,051; sweet potatoes, 5,095,709; Irish potatoes, 620,818; barley, 2,735; buckwheat, 16,704; hay, 145,653 tons; hops, 9,246 lbs.; clover seed, 576 bush.; other grass seeds, 1,275 bush.; butter, 4,146,290 lbs.; cheese, 95,921 lbs.; peas and beans, 1,564,252 bush.; produce of market gardens, \$39,462; orchard products, \$34,848; honey and bees-wax, 512,289 lbs.; home-made manufactures, \$2,086,522; flaxseed, 88,196 bush.; flax, 592,796 lbs.; hemp, 89 tons; maple sugar, 27,982 lbs.; molasses, 704 gallons; ginned cotton, 54,545 bales of 400 lbs. each; rice, 5,465,868 lbs.; tobacco, 11,984,786 lbs.; wool, 970,738 lbs.; silk cocoons, 229 lbs.; wine, 11,068 gallons; value of household goods (1840), \$1,413,242. The census report returns 2,604 manufacturing and mining establishments, employing a capital of \$7,252,225, using raw

material valued at \$4,805,465, and employing 12,444 operatives (10,693 males and 1,751 females), whose annual wages were \$1,796,748. The annual product of these establishments was \$9,111,245, yielding 34.60 per cent. profit. Among the manufacturing establishments were 28 cotton factories, with a capital of \$1,058,800, using 13,617 bales of cotton, valued at \$531,908, employing 1,619 operatives (442 males, at \$11 65 per month, and 1,177 females, at \$6.18 per month), and yielding an annual product of \$831,842; 1 woollen manufactory, capital \$13,000, using 80,000 lbs. of wool, valued at \$13,950, employing 80 operatives, and producing annually \$28,750; establishments for iron castings 5, capital \$11,500, value raw material \$8,341, hands 15, product \$12,867; wrought iron establishments 80, capital \$170,609, value of raw material \$50,089, hands employed 290, product \$331,914; whiskey distilleries and breweries 47, capital \$21,930, corn consumed 64,650 bushels, rye 4,700, hands employed 72, whiskey and high wines produced 153,030 gallons; fisheries 76, capital \$235,115, hands 2,267, product \$250,025. The exports for the year ending June 30, 1857, were \$414,206, of which \$389,592 was in American, and \$24,614 in foreign vessels. Imports for the same year, \$231,494, of which \$206,747 was in American, and \$24,748 in foreign vessels. The tonnage cleared in the same year was 88,037 tons, of which 84,401 tons were in American bottoms. Number of vessels cleared, 210, of which 192 were American. Tonnage entered, 20,218, of which 18,866 tons were in American vessels; number of vessels entered 124, of which 113 were American. Twenty-one vessels were built in the state in 1857, of which 19 were schooners and 2 sloops, the total tonnage of which was 1,373.74.—The census of 1850 reports 4 public libraries in the state with 2,500 vols., and 1 school library with 1,500 vols., also 51 newspapers, of which 8 were miscellaneous, 2 neutral, 35 political, and 6 religious; 5 are published tri-weekly, 40 weekly, and 6 semi-monthly; aggregate circulation, 86,839; annual number of copies issued 2,020,564. There are 4 colleges in the state, viz., the university of N. C. at Chapel Hill, the oldest institution of the kind in N. C.; Davidson college (Presbyterian) in Mecklenburg co., Wake Forest (Baptist) in Wake co., and Normal college (Methodist) in Randolph co. The university has an attendance of about 400 students, and the others an average of about 100 each. The university, which is under the control of trustees appointed by the state, is endowed to the amount of \$150,000, and Davidson college about \$300,000. The census for 1850 returns 272 academies and private schools, with 403 teachers, 7,823 pupils, \$15,987 endowment, total annual income \$187,648; 2,657 public schools, with 2,780 teachers and 104,095 pupils. The annual income of the public schools is reported at \$153,564, of which \$1,535 is from endowment, \$42,986 from taxation, \$97,887 from



public funds, and \$16,715 from other sources. There were 215,454 white persons in the state between 5 and 20 years of age, so that less than  $\frac{1}{3}$  the children of the state attended school; 80,428 free adults cannot read and write, of whom 26,239 are white males, 47,327 females, 8,099 free colored males, 8,758 females, and 840 of foreign birth. These figures are from the U. S. census for 1850, since which public education has considerably advanced. A system of common schools was inaugurated in 1840, at which time only 14,347 children were returned as attending primary schools; and including those at colleges and academies, the whole attendance did not exceed 20,000 scholars. In 1858 an efficient general superintendent was appointed, and reappointed in 1855, who is responsible to the legislature and board of literature, consisting of 4 members, of whom the governor is *ex officio* president. From the superintendent's report for the year ending Dec. 31, 1855, it appears that there were 120,000 scholars in the common schools, and about 11,000 in colleges, academies, and private schools. The state is divided into school districts with local directors, the districts in each county being under the direction of a board of county superintendents, who report to the state superintendent. The average length of schools is about 4 months in the year, and the average wages of male teachers \$21 per month, females \$18. The school fund in 1855 amounted to \$1,588,995 46, yielding annually about \$120,000 increased to \$180,000 by sales of lands, taxes, &c., and is distributed among the counties according to their federal population. The counties raise by taxation about \$60,000, making the amount annually devoted to public schools \$240,000. On July 1, 1857, the school fund had increased to the nominal value of \$2,156,745 42. —The census of 1850 reports 1,787 churches in the state, viz.: 604 Baptist, 786 Methodist, 151 Presbyterian, 54 Free, 51 Episcopal, 29 Christian, 81 Friends, 16 German Reformed, 49 Lutheran, 7 Moravian, 4 Roman Catholic, 4 Union, and 1 Tunker. The church property of the state is reported at \$905,753, viz.: Baptist, \$205,090; Methodist, \$292,608; Episcopal, \$112,340; Presbyterian, \$172,580; Christian, \$10,575; Free, \$16,860; Friends, \$8,075; German Reformed, \$17,500; Lutheran, \$29,525; Moravian, \$84,000; Roman Catholic, \$5,900; Tunker, \$100; Union, \$650. Total church accommodations, 574,924, viz.: Baptist, 201,797; Methodist, 222,687; Presbyterian, 64,230; Christian, 11,600; Episcopal, 15,245; Free, 14,870; Friends, 12,220; German Reformed, 5,725; Lutheran, 19,750; Moravian, 8,000; Roman Catholic, 1,400; Union, 1,200. —The constitution of the state was formed in Dec. 1776, and modified in 1835, and again in 1857. It provides that every white male citizen, 21 years of age, 1 year a resident of the county, who shall have paid a tax, shall be a qualified voter. The executive department is vested in a governor elected by the people for

a term of 2 years, an advisory council of 7 members, secretary of state, treasurer, comptroller, and a superintendent of common schools, all chosen by the legislature. The governor must be 35 years old, worth \$5,000, and have been a resident of the state for 5 years. He has a furnished house and \$3,000 per annum. The legislature consists of a senate of 50 members elected for 2 years, and a house of commons of 120 members for the same term. Senators must possess each 800 acres of land in the county from which they are chosen, and members of the house of commons 100 acres. The legislature meets biennially at Raleigh on the 2d Monday in November, and an apportionment of representatives is made once in 20 years, that of the commons being based on federal population, and the senate on taxation. The judiciary is vested in a supreme court, consisting of a chief justice and 2 associates, holding 3 courts each year, and superior or circuit courts, there being 7 circuits and as many judges, who hold court twice a year in each county. The judges are all elected by the legislature in joint ballot, also an attorney-general, the former during good behavior, and the latter for 4 years. The supreme court is merely appellate in its jurisdiction. The judges of the superior court have complete equity jurisdiction. The salary of the supreme court judges is \$3,500, and of the superior court, \$1,950, and \$90 for each court (over 12) held on a circuit. One peculiar feature of the constitution provides that "no person who shall deny the being of a God, or the truth of the Christian religion, or the divine authority of the Old and New Testament, or who shall hold religious principles incompatible with the freedom or safety of the state," shall hold any civil office. No clergyman, engaged in his calling, can be a member of the legislature or of the governor's council. —The last report on the finances (Nov. 1856) shows a state debt of \$5,209,843, the annual interest of which is \$312,591, and productive property held by the state amounting to \$4,616,274. The receipts and disbursements for the 2 years ending Nov. 1, 1856, were as follows: In treasurer's hands Nov. 1, 1854, \$55,120 79; receipts of literary fund, \$329,326 35; receipts of public fund, \$3,826,112 94; making the total receipts \$4,211,060 08. The disbursements for the same period were: from literary fund, \$396,665 59; public fund, \$3,557,938 21; total, \$3,954,603 80, leaving a balance in the treasury of \$256,456 28. The income of the public fund is from the sale of bonds and loans, from dividends and interest, public taxes, taxes on bank stocks, and attorneys' licenses; and the principal items of expenditure are, for the executive and council of state, about \$10,000, the judiciary about \$30,000, interest about \$300,000, printing and agricultural societies, \$7,500. The literary fund receipts are from entries of vacant lands, bank and railroad dividends, retail licenses, and auction daps; and some of its disbursements are for the support of common schools, and the

deaf and dumb and blind.—The railroads of the state are: the North Carolina, extending from Goldsborough to Charlotte, 228 m., capital stock paid in \$4,000,000, cost of construction and equipment \$4,285,000; Raleigh and Gaston, extending from Raleigh to Weldon, 97 m., capital stock paid in \$978,000, funded and floating debt \$121,000, cost of construction and equipment \$1,135,451; Wilmington and Weldon, from Wilmington to Weldon, 162 m.; Wilmington and Manchester, from Wilmington, N. C., to Kingsville, S. O., 171 m., capital stock paid in \$1,115,000, debt \$998,000, cost of construction and equipment, \$2,881,000, receipts for 1856, \$344,636, working expenses, \$196,000 (about  $\frac{1}{3}$  of this road is in S. O.); Roanoke Valley, from Ridgeway junction, N. C., to Clarksville, Va., 22 m.; and the Atlantic and N. C., extending from Beaufort harbor to Goldsborough. Several other roads have been projected, viz.: the Wilmington, Charlotte and Rutherford, extending W. from Wilmington to Rutherford; the Air Line, from Danville, Va., near the N. C. line, to Greensborough, N. C., connecting the Richmond and Danville and North Carolina roads; the Western North Carolina, from Salisbury in the central part of the state to Murphy in the extreme west, where it connects with the Blue Ridge road, and some others of minor importance. Of these roads the Western North Carolina is (1858) in course of construction, and a considerable portion of it is nearly finished.—On June 1, 1857, there were 28 banks in the state, with an aggregate capital of \$6,425,250; circulation, \$6,801,362; loans and discounts, \$12,636,521; specie, \$1,156,993; deposits, \$1,170,026.—The first attempt at settlement in N. C. was made by a small party (108) under Ralph Lane, sent out by Sir Walter Raleigh, on Roanoke, an island between Pamlico and Albemarle sounds, in 1585. This party quarrelled with the Indians, and returned the following year with Sir Francis Drake's fleet. The year previous to this settlement (1584) Raleigh, having received from Queen Elizabeth a grant for such lands as he might discover in America, "not possessed by any Christian people," sent out 2 small vessels which made the land at Cape Fear, and coasting north for a harbor, finally, early in July, ran into Ocracoke inlet, and landed on an island called by the natives Woccon, where they were hospitably received. After slight explorations they bestowed the name of Virginia upon the region, and returned to England with a highly favorable account of the country, which induced the expedition of 1585. Other colonists were sent out by Raleigh the same year, and the year following, who are supposed to have fallen victims to the Indians; and no further attempts were made to colonize the country till about the middle of the 17th century. In 1680 an immense tract of land south of the Chesapeake, designated as Carolana, was granted to Sir Robert Heath; but not being colonized, the grant was subsequently declared forfeited. In 1683 Charles II.

formed out of the same territory the province of Carolina, which he granted to 8 distinguished noblemen of England. This grant was bounded S. by lat. 29° N.; W. by the Pacific ocean; N. by lat. 36° 30'; E. by the Atlantic. The grantees were made joint proprietors and vested with jurisdiction over the colonists. Previous to this grant a few settlements had been made in the N. part of the province, near Albemarle sound, by dissenters from Virginia, and a little colony had been planted near the mouth of Cape Fear river by New Englanders, which was subsequently abandoned. The celebrated John Locke wrote a scheme of government for the whole province, which was nominally its fundamental law for about  $\frac{1}{3}$  of a century, but which was so complicated and cumbersome as never to be completely carried out. Albemarle, the name then given to what now constitutes North Carolina, was augmented by settlement from Virginia, New England, and Bermuda, and William Drummond, one of the settlers, was its first governor, a man who was subsequently executed in Virginia as a rebel. Drummond was succeeded by Samuel Stevens, under whom were enacted the first laws for the colony by an assembly composed of the governor, council, and 12 delegates, the latter chosen by the people, and the former by the proprietors. These laws were liberal, guarding carefully the rights of the settlers, and granting religious liberty to all. Settlements were made at various points, and the executive chair was filled in turn by various men; yet with the bad administration of public affairs, disquiet and turbulence on the part of the colonists, and occasional insurrections, the settlement of the country was very slow. In 1674 the population was about 4,000, and the annual product of tobacco 800,000 lbs. In 1695 John Archdale, a sagacious Quaker, was appointed governor, and succeeded in restoring the country to comparative order and quiet. Considerable settlements were made during his administration, and the export of tar and rice was commenced. Churches were erected and provision made for the support of public worship. In 1705 Thomas Cary was appointed governor, but was removed to give place to Edward Hyde; whereupon Cary, to retain his position, incited a rebellion, and at the head of an armed force, attacked Edenton, but was repulsed, and finally, by the aid of regular troops from Virginia (1711), the rebellion was suppressed. Meanwhile the province was involved in a war with the savages. The Tuscaroras, observing with alarm the encroachments of the whites on their hunting grounds, commenced a war of extermination; but by the assistance of neighboring colonies this tribe was subdued (1713), and finally emigrated to the N., and formed a confederation with the Senecas. Other hostile tribes were also reduced to subjection. In 1717 the number of taxable inhabitants did not exceed 2,000, having gained no more than 600 since 1676, a term of 41 years. In July, 1729, during the administration of Governor Everard, Caro-

lina became a royal government, the king having purchased from the proprietors  $\frac{1}{4}$  of their immense domain for £17,500, to which £5,000 was added for arrears of quitrents; the remaining eighth was retained by Lord Carteret, who surrendered his right of jurisdiction, but not of soil. The country was successively governed with indifferent success by Barrington, Johnston, and Dobbs, till 1765, when it had gained considerable accessions to its population from a colony of Presbyterians from the N. of Ireland, who settled in the N. W. part of the state, a party of Moravians who settled between the Yadkin and Dan rivers, and a party of Highlanders who located near Fayetteville. Tryon was the next governor, and early in his administration the contest between the colonies and the home government on the question of taxation began; when the assembly (1769) declared against the right of Britain to tax North Carolina, while unrepresented in parliament, he dissolved it. During his administration there was a formidable insurrection on the part of a large body of poor uneducated people, who complained of unjust taxation, and finally refused to pay any taxes at all. They called themselves the "regulators." With 1,000 militia he met 8,000 regulators, whom he defeated, near Great Alamance, a tributary of the Haw, in which some 200 were killed. Out of a large number taken prisoners 6 were executed for high treason. After this defeat the insurgents took the oath of allegiance, and shortly thereafter Tryon was succeeded by Josiah Martin, the last royal governor of North Carolina. Disputes soon arose between the governor and the assembly, and the breach was widened by the persistence of England in taxing the colonists without their consent. The governor sided with the crown, as did the regulators, whom he had conciliated. North Carolina sent representatives to the first continental congress, Sept. 1774, and its delegates united in adopting the declaration of colonial rights, which the assembly approved, and that body also appointed delegates to the next congress. An association for the defence of colonial rights was formed in Mecklenburg co., which took such decided ground as (May, 1776) formally to renounce allegiance to the crown, and to declare their independence of the British connection; but this feeling was not general, and counter-combinations were formed to sustain the royal authority. Alarmed at the threatening state of affairs, Governor Martin retired on board a man-of-war in Cape Fear river, July 17, 1776. A convention was held, Aug. 20, which authorized the raising of 8 regiments of troops, subsequently increased to 5, and taken into colonial pay by congress. A proclamation was issued by Gov. Martin from on board ship forbidding their meeting, which the convention denounced as scandalous and scurrilous, and ordered it to be burned by the hangman. The loyalists were quite strong, especially among the regulators and Highlanders. A body of 1,500 loyalists, under McDonald and

McLeod, who had been commissioned by Martin, attempted to reach the coast and join Gen. Clinton, but were met by the patriots under Caswell and Moore, and routed with the loss of McLeod and 850 prisoners, including McDonald. The common men were dismissed and the officers retained. In April, 1776, the North Carolina convention authorized their delegates to unite with the other colonies in a declaration of independence, which took place in the following July. North Carolina ordered 4 more regiments to be raised, and the Highlanders and regulators to be disbanded. In Dec. 1776, the province adopted a state constitution, and elected Richard Caswell as governor. The colony furnished her quota of men, but, beyond the partisan warfare between the patriots and loyalists, was not the scene of military operations till 1780. Encouraged by the success of the British in Georgia, a party of 700 N. C. loyalists marched to join the royal cause at Augusta. In their march they were attacked by a party of patriots from S. C., under Col. Pickens, who routed them, killing their leader, and capturing a number of prisoners, 70 of whom were tried and convicted of treason, and 5 of the most influential actually hanged. In 1780, 2 large parties of loyalists rose in arms, one of which was attacked and dispersed by Gen. Rutherford, and the other, 800 strong, reached the British post. Oct. 9, 1780, a body of loyalist militia, under Gen. Ferguson, were met at King's mountain by a party of mounted backwoodsmen under Shelby and Sevier, and defeated after a severe engagement, with the loss of 150 killed (including Ferguson) and a greater number wounded. The survivors (800) surrendered, 10 of the most active and obnoxious of whom were hanged upon the spot. The only engagement of note in the colony after this affair, until the conclusion of peace, was the battle of Guilford Court-House (March 15, 1781), though much skirmishing was carried on between small parties of loyalists and patriots. The forces engaged under Gen. Greene at Guilford amounted to 4,500 men, of whom 1,600 were continentals, and the remainder mainly undisciplined militia. The British, under Cornwallis, were disciplined troops, about 2,000 strong; and the result of the engagement was the defeat of Greene. The British loss on the field was upward of 500, and the American something more than 400, while a large part of the militia dispersed and returned home. The constitution of the U. S., formed in 1787, was rejected by North Carolina in 1788, but finally adopted in 1789.

CAROLINA, SOUTH, one of the original southern states of the American Union, lies between lat. 32° and 35° 10' N., and long. 78° 55' and 83° 30' W. The state has the form of an irregular triangle or wedge, with the coast line for its base, and Georgia and North Carolina for its converging sides. Its extreme length, from Little River inlet on the E. to Chattooga river on the W., is about 240 m., and its greatest breadth, from the mouth of Savannah river

on the S. to the North Carolina line on the N., about 210 m., including an area stated by Gov. Seabrook at 80,218 sq. m., or 19,336,320 acres. It is bounded on the N. and N. E. by North Carolina, S. E. by the Atlantic ocean, and S. W. by the Savannah river, which separates it from Georgia. It is divided into 80 districts, similar to the counties in other states, viz.: Abbeville, Anderson, Barnwell, Beaufort, Charleston, Chester, Chesterfield, Clarendon, Colleton, Darlington, Edgefield, Fairfield, Georgetown, Greenville, Horry, Kershaw, Lancaster, Laurens, Lexington, Marion, Marlborough, Newberry, Orangeburg, Pickens, Richland, Spartanburg, Sumter, Union, Williamsburg and York. Charleston, the chief city of the state, and one of the most important seaports in the southern states, Columbia, the capital of the state, Beaufort, Georgetown, Hamburg, Camden, Greenville, Sumter, Spartanburg, Cheraw, Blackville, Aiken, Winnsborough, Anderson, Yorkville, and Chester, are the more prominent towns of South Carolina.—The following table shows the population of the state at the several decennial enumerations since and including 1790:

Common.	Whites.	Free colored.	Slaves.	Total pop.
1790.....	140,178	1,801	107,094	249,073
1800.....	196,255	3,185	146,151	345,591
1810.....	214,196	4,554	196,865	415,115
1820.....	237,440	6,896	253,475	502,741
1830.....	257,868	7,991	315,401	581,185
1840.....	259,064	8,376	327,088	594,528
1850.....	274,563	8,960	384,984	668,507

Of the white population in 1850, 187,747 were males, and 186,816 females; 6,452 were less than 1 year of age; under 5 years, 41,509; 5 and under 10, 40,577; 10 and under 15, 36,974; 15 and under 20, 30,262; 20 and under 30, 47,807; 30 and under 40, 30,807; 40 and under 50, 21,176; 50 and under 60, 13,673; 60 and under 70, 7,468; 70 and under 80, 3,872; 80 and under 90, 1,117; 90 and under 100, 310; 100 and upward, 29; unknown 81. Deaf and dumb, 134; blind, 150; insane, 224; idiotic, 249. Born in the state, 253,399; in other of the United States, 12,601, of whom 6,173 were born in North Carolina, and 1,621 in Virginia; in foreign countries, 8,508, of whom 4,051 were born in Ireland, 2,180 in Germany, 921 in England, and 651 in Scotland; unknown, 55. Of white and free colored there were 52,937 families, occupying 52,642 dwellings. Of the slaves, 187,756 were males, and 197,228 females, and 167 were over 100 years of age. Of the free colored, 4,131 were males, and 4,329 females; 10 were over 100 years old. Slaveholders in the state, 25,596, of whom 3,492 own each 1 slave; 1 and under 5, 6,164; 5 and under 10, 6,811; 10 and under 20, 4,955; 20 and under 50, 3,200; 50 and under 100, 990; 100 and under 200, 882; 200 and under 300, 69; 300 and under 500, 29; 500 and under 1,000, 2; 1,000 and over, 2. Deaths in the state in 1850, 8,046, of whom 5,167 were slaves; marriages (free pop.), 2,005; births, 6,607. The occupations of the free male population over 15

years of age in 1850 were: commerce, trade, manufactures, mechanic arts, and mining, 18,205, of whom 7,009 were employed in manufacturing establishments; agriculture, 41,302; labor not agricultural, 8,151; sea and river navigation, 846; law, medicine, and divinity, 1,829; other pursuits requiring education, 8,161; government civil service, 872; domestic servants, 149; other occupations, 84; total, 68,549. Paupers in the state, 1,813, of whom 329 were of foreign birth; annual cost of support, \$48,337; convicted of crimes in 1850, 46.—Savannah river, which forms the boundary between South Carolina and Georgia, is formed by the confluence of the Tugaloo and Keowee, which rise in the mountains near the line of N. C., and unite at Anderson, in the N. W. part of S. C., and flowing thence in a S. S. E. direction 450 m., empties into the Atlantic 18 m. below Savannah, near lat. 32° N. and long. 81° W. It is navigable for large vessels to Savannah, and for steamers of 150 tons to Augusta, 280 m., and by means of a canal round the falls at Augusta smaller boats ascend 150 m. further. The other principal rivers are the Great Pedee, the Santee, and the Edisto. The former, which rises in the Blue Ridge, flows N. through North Carolina, where it is called the Yadkin, passes through the E. portion of S. C., and being enlarged by the waters of Lynch's creek and the Black river on the right, and the Little Pedee and Waccamaw on the left, empties into Winyaw bay. It is navigable for steamboats to Cheraw, a distance of about 150 m., above which navigation is obstructed by a fall. The Santee is formed by the junction of the Congaree and Wateree, which by their tributaries rise in the Blue Ridge (W. part of N. C.), flow S., and unite in the central part of S. C.; the stream thus formed, taking the name of the Santee, and flowing about 100 m. in a S. E. direction, reaches the Atlantic by 2 mouths, North and South Santee, a few m. S. W. of Winyaw bay. The principal tributaries of the Congaree are the Saluda and Broad rivers. The Santee is navigable for its entire length, and its tributaries, Wateree and Congaree, by aid of canals, are navigable for small craft nearly to the mountains about 200 or 300 m. from the ocean. The Edisto and Combahee rise in the interior, and flowing S. reach the Atlantic near the southernmost point of the state. These streams are 100 to 240 m. in length, and navigable for very small craft. The state is remarkably well watered, and almost every district abounds in good sites for manufacturing by water power.—The coast-line of South Carolina extends from Little River inlet, in a S. W. direction, to the mouth of the Savannah river, about 200 m. The coast presents numerous inlets, bays, shallow sounds and lagoons, and a few good harbors. Winyaw bay, the easternmost harbor of any note in the state, is 14 m. long, and about 2 m. wide. Georgetown is situated at the head of this bay, to which vessels of light draft ascend. Passing S. W., Bull's bay is next in order, then Charles-

ton harbor, St. Helena sound, and Beaufort harbor, or Port Royal Entrance, beside a number of small inlets. Charleston harbor, where the principal commerce of the state centres, has a difficult sand-bar at its entrance. Beaufort harbor, which admits vessels of 24 feet draught, is one of the best in the southern states. Stone inlet, a few miles S. of Charleston, admits vessels drawing 9 or 10 feet of water, and was resorted to during the blockade of Charleston in 1775. St. Helena sound, is a spacious opening 10 m. long and 8 broad. A number of small islands skirt the S. coast of the state, which are shut off from the mainland by narrow channels, which afford inland steamboat communication between Charleston and Savannah. These islands are low and flat, and produce the black-seed or sea-island cotton, the best known to commerce. Rice is also here produced in large quantities, and tropical fruits begin to flourish.—The topography of the state resembles that of the other states along the S. E. coast, but the mountainous district is not relatively so large as that of North Carolina. The coast for about 100 m. inward is flat and sandy, with a light soil, covered by pitch-pine forests, traversed by sluggish streams, and interspersed with numerous swamps. This portion of the state is of alluvial formation. Beyond this plain is a belt of low sand-hills called the middle country, which is moderately productive. West of the middle country is a belt called the ridge, where the land rises abruptly, and thence continues to ascend, exhibiting beautiful alternations of hill and dale, till it terminates at the extreme N. W. part of the state in the Blue Ridge, the highest peak of which, in this state, is Table mountain, 4,000 feet above the Atlantic. King's mountain, in York district, on the line between North and South Carolina, is an isolated mountain of considerable prominence. South Carolina has a great variety of soil, very little waste land, and produces cotton, rice, tobacco, maize, oats, rye, barley, sweet and Irish potatoes, peas, beans, &c. "The soil of the state," says Gov. Seabrook, "though of every kind, may be said to comprehend 6 varieties, each the best suited to a certain crop, yet all of them capable of advantageously producing  $\frac{1}{2}$  of the vegetable products grown in its limits." The 6 varieties here referred to are: 1, tide swamp, appropriated to the culture of rice; 2, inland swamp, to rice, cotton, corn, peas, &c.; 3, salt marsh, to long cotton; 4, oak and pine, to long cotton, corn, potatoes, &c.; 5, oak and hickory, to short cotton, corn, &c.; 6, pine barren, to fruits, vegetables, &c. The pine lands, embracing about 6,000,000 acres, are perhaps the most neglected section of the state. "The swamps," says Gov. Seabrook, "covering 2,000 sq. m. (1,280,000 acres), of inexhaustible fertility, are capable of thorough and economical drainage, and conversion into active and available capital." The state is nearly equally divided between the primary and alluvial formations; the former, of which oak is the natural growth, is broken

and hilly. The soil of much the larger portion of the state is clay, which, except in the immediate vicinity of the ocean, is almost the universal substratum.—The gold-bearing rocks of the Atlantic slope extend through the S. portion of S. C., where the precious metal has been found in sufficient abundance to reward the labor of the miner. In several cases large nuggets of pure gold have been found, and gold-bearing veins have been successfully worked; those of the Dorn mine have proved the most productive of any this side of the Rocky mountains, but the largest quantities of gold have been obtained from surface washings. Iron ore of a good quality is also found in abundance in the same section of the state, but the ore-beds have not as yet been very extensively worked. The granitic formations (upper country) afford great abundance of building material. "Among the beautiful granites of the state," says Prof. Tuomey, "the porphyritic granite of Camden and Buffalo creek, and the red granite near Columbia, are conspicuous. Of the sienites, those found in Abbeville, Fairfield, and Lexington are the most beautiful. The former resembles the Quincy granite, and the latter is remarkable for its white feldspar, contrasting so strikingly with the black crystals of hornblende." White and variegated marbles are found in Spartanburg and Laurens. Gneiss, of a quality sufficiently slaty to be split into flagging-stones, has been discovered in Pickens and in the lower part of York district. Porcelain earth abounds through the primary regions, wherever the felspathic granite is found in a state of disintegration. Soap-stone of fine quality exists in several localities. Red and yellow ochres abound in Chesterfield district. Coal has not been found in the state, and the rock formations do not warrant the hope that it exists there.—In regard to climate, S. C. is favorably situated between the intense heat of the tropics and the frigid temperature of the N.; and while the state grows nearly or quite all the vegetable products of the N. temperate zone, it also produces to some extent the tropical fruits, though early and late frosts sometimes render the latter a precarious crop. The climate varies, of course, according to elevation. The mean temperature of Charleston is stated from 8 years' observation at 65.5°.—There are 16,217,600 acres of farming lands in the state, of which the census of 1850 reports 4,072,551 as improved. Farms and plantations, 29,967, averaging 541 acres each; planters owning over 10,000 acres each, 16; cash value of farms and plantations, \$82,431,684; farming implements and machinery, \$4,186,354; average value of farms, \$3,751; of implements and machinery, \$138; cotton plantations producing 5 bales and over, 11,522; rice plantations producing 20,000 lbs. and over, 446. On the farms of the state were 97,171 horses, 87,483 asses and mules, 193,244 milch cows, 20,507 working oxen, 563,935 other cattle, 285,531 sheep, 1,065,508 swine. Value of live stock,

\$15,060,015; of slaughtered animals, \$3,503,637. The wheat product was 1,066,277 bush.; rye, 43,790; oats, 2,322,155; maize, 16,271,454; Irish potatoes, 136,494; sweet, 4,387,469; barley, 4,583; buckwheat, 283; hay, 20,925 tons; clover seed, 376 bush.; butter, 2,981,850 lbs.; cheese, 4,970 lbs.; peas and beans, 1,026,900 bush.; produce of market gardens, \$47,286; orchard products, \$35,108; beeswax and honey, 216,821 lbs.; value of poultry (1840), \$396,364; home-made manufactures, \$909,525; wood, cords (1840), 171,451; cane sugar, 77,000 lbs.; molasses, 15,904 galls.; ginned cotton, 120,360,400 lbs.; rough rice, 159,930,613; tobacco, 74,285; wool, 487,283; silk cocoons, 123; wine, 5,880 galls.; value of family goods (1840), \$930,703. The average product of the state per acre is: wheat, 8 bush.; maize, 11; oats, 12; rice, 1,750 lbs.; seed cotton, 320 lbs.; peas and beans, 18 bush.; Irish potatoes, 70. Manufacturing establishments in the state, 1,481; capital invested, \$6,056,865; raw material used, \$2,809,534; hands employed, 7,009; annual wages paid, \$1,123,432; annual product, \$7,063,518; profit, 51.60 per cent. Of these establishments, 18 were cotton factories, capital \$357,200, cotton used 2,929 bales; 6 were manufactories of iron castings, capital \$185,700; value of material used \$29,128, product \$37,683; 18 distilleries and breweries: capital \$3,475, corn used 18,100 bush., whiskey and high wines produced 43,900 galls.—The exports of the state for the year ending June 30, 1857, were \$16,140,408, of which \$12,969 were the produce of foreign countries; exported in American vessels \$10,590,773, in foreign vessels \$5,549,630. Imports for same year, \$3,019,786, of which \$1,720,616 were in American, and \$299,170 in foreign vessels. Tonnage cleared 153,002; in American vessels 105,000, in foreign 47,940. Number of vessels cleared 435, of which 262 were American. Tonnage entered 127,585, of which 83,205 tons were in American vessels. Number of vessels entered 356, of which 198 were American. During the year 1857, 6 vessels were built in the state, 2 of which were schooners and 4 sloops; total tonnage 266.87.—Among the curiosities which invite the attention of the tourist, the most prominent is Table mountain, 4,000 feet above the sea, and which looms up perpendicularly on one of its faces 1,100 feet above the surrounding country. A hotel has been erected at its base, and it has become somewhat famous as a place of fashionable resort. "Cæsar's Head," a rock projection so called from its resemblance to the human cranium, and on the summit of which is a house of entertainment, is also a place of summer resort in the vicinity of Table Rock. Glenn's Spring, the waters of which are impregnated with magnesia and sulphur, is a watering place of some note in Spartanburg district. The falls of the Saluda among the mountains have, according to Professor Tuomey, a descent of from 300 to 400 feet, and the region presents much grand and picturesque scenery.—Among the public institutions of the state is a lunatic asylum

at Columbia, which is richly endowed, and is under the control of the state. On Nov. 5, 1855, there were 187 patients in this institution, of whom 100 were males and 87 females; 89 were paupers, and 98 pay patients. Receipts during the year, \$39,230 99; expenditure, \$38,087 67; discharged cured during the year, 22; removed, 11; died, 18. An asylum for the deaf and dumb at Cedar Springs, in Spartanburg district, is under the patronage of the state. The orphan asylum at Charleston is richly endowed, and has accommodations for 250 children. The state provides annually for the education, at the South Carolina college, of one youth from this asylum, to be selected as a reward of merit by the commissioners.—The census of 1850 reports 16 public libraries with 78,758 vols., 8 school libraries with 2,750 vols., and 7 college libraries with 30,964 vols.; also 46 newspapers, of which 10 are miscellaneous, 5 neutral, 24 political, 5 religious, and 2 scientific. Of these papers 7 are published daily, 5 tri-weekly, 27 weekly, and 5 semi-monthly. The aggregate circulation of these papers was, 55,715; annual number of copies issued, 7,145,930. There are 8 colleges in the state, with 43 teachers and 730 students; annual income \$104,790, of which \$41,700 is from the public funds, \$9,650 from endowments, and \$53,440 from other sources. The S. C. college at Columbia is a state institution, with 8 professors, and a library of 25,000 volumes. Academies and private schools, 202; teachers, 833; pupils, 7,467; annual income, \$305,489, of which \$226 is from the public funds, \$3,700 from endowments, and \$196,563 from other sources. Public schools (1850), 724; teachers, 789; pupils, 17,838; annual income, \$200,600, of which \$35,973 was from the public funds, \$3,000 from endowments, \$1,200 from taxation, and \$160,427 from other sources. Total number attending school in 1850, as returned by families, 40,373, of whom 21,792 were males, and 18,581 females; number of children between 5 and 15 years of age, 77,551; adults who could not read and write, 16,564, of whom 880 were free colored, and 104 of foreign birth. The school system of the state has been improved somewhat since 1850. The state now (1858) appropriates \$74,400 annually to free schools, which is distributed at the rate of \$600 to each representative in the popular branch of the legislature. Academies have been established, called arsenal and citadel academies, in which the youth are practically educated in military tactics, and in engineering and surveying.—The census returns 1,183 churches in the state, of which 413 are Baptist, 484 Methodist, 186 Presbyterian, 72 Episcopal, 41 Lutheran, 5 Free, 8 Jewish, 14 Roman Catholic, 3 Universalist, 1 each Congregational, Friends, and Unitarian, and 8 of minor sects. Total value of church property in the state, \$2,172,246, viz.: Baptist, \$293,863; Episcopal, \$616,950; Methodist, \$341,168; Presbyterian, \$433,175; Congregational, \$70,000; Free, \$1,700; Friends, \$500; Jewish, \$33,700; Lutheran, \$109,500; Roman Catholic, \$78,

315; Unitarian, \$30,000; Universalist, \$6,000; minor sects, \$57,875. The churches afford accommodation for 460,450 persons, viz.: Baptist, 165,850; Congregational, 2,000; Episcopal, 28,940; Free, 1,550; Friends, 500; Lutheran, 14,750; Methodist, 165,740; Presbyterian, 67,765; Roman Catholic, 6,030; Unitarian, 700; Universalist, 950; minor sects, 8,320.—The first state constitution was formed in 1775, and the present one was adopted in 1790. It vests the executive authority in a governor, who is elected for 2 years by a joint vote of the legislature, at each first meeting of the house of representatives. The governor is ineligible to the same office for the next 4 years after the expiration of his term. He receives \$3,500 per annum, and house rent. A lieutenant-governor is elected in the same manner, and for the same term, who acts as governor in the case of the death or removal from office of the governor. Presidential electors are also chosen by joint vote of the legislature. The legislative authority is vested in a general assembly, consisting of a senate of 45 members, who are elected by districts for 4 years, one half biennially, and a house of representatives of 124 members, apportioned among the several districts, on a basis of white inhabitants and taxation, elected for 2 years; this body and one-half the senators being elected every second year, on the 2d Monday in October, and the day following. Members of the legislature receive \$3 per diem; and 10 cents per mile travelling fees. The general assembly meets annually on the 4th Monday in November, at Columbia. South Carolina has 6 representatives in the popular branch of congress.—The judicial power is vested in such superior and inferior courts of law and equity as the legislature shall from time to time establish. The judiciary of the state is at present (1858) as follows: 1. The law court of appeals, and equity court of appeals, the former consisting of all the law judges, for hearing appeals from the courts of law, and the latter of all the chancellors, for hearing appeals from the courts of equity; two sessions are held at Columbia and one at Charleston annually; 2. courts of equity, presided over by 4 chancellors, who take cognizance of all matters belonging to a court of equity, as contradistinguished from a court of law; a term is held by one chancellor annually in each district except Charleston, where 2 terms are held; 3. courts for the correction of errors, consisting of all the judges in law and equity, to try constitutional questions, or questions where the law and equity courts are divided; 4. courts of common pleas and general sessions, having original jurisdiction in all civil cases where legal rights are involved (except matters of contract where the amount is \$20 or under), and in all criminal cases affecting free white men, appellate jurisdiction in all appeals from magistrates' courts, and in appeals from the court of ordinaries in all cases except in matters of account; these courts are held in each district twice annually; 5. city court

of Charleston, a court of limited jurisdiction, presided over by the recorder; 6. ordinary's court, in each district, to grant letters of administration, probate wills, examine executors, and administrators' accounts, &c.; 7. magistrates' courts, having exclusive jurisdiction in matters of contract for \$20 and under; 8. courts of magistrates for the trial of slaves and free persons of color for criminal offences.—The actual debt of the state on Oct. 1, 1856, was \$2,693,276 50, consisting of 3, 5, and 6 per cent. state stocks and bonds, on which the annual interest is \$149,527 88. The state has subscribed \$600,000 to the stock of the Blue Ridge railroad co., yet to be called for, which will increase its debt to \$3,293,276 60, and the annual interest to \$179,527 88. The state also owes a contingent debt of \$4,051,422, of which \$1,051,422 is U.S. surplus revenue deposit, \$2,000,000 guarantee of the bonds of the S. C. railroad co., and \$1,000,000 guarantee of the bonds of the Blue Ridge railroad co. The new capitol will create an additional debt, which is to be covered by a 6 per cent. stock. The assets of the state amount to \$6,243,114 54, viz.: the surplus assets of the state bank \$4,500,814 54, and stock in various railroad companies \$1,742,300. The receipts into the state treasury for the year ending Sept. 30, 1856, were \$593,962; balance, Oct. 1, 1856, \$136,809 64, making the total means \$730,771 64. Total expenditure for the year, \$591,145 98; balance, Oct. 1, 1856, \$139,625 66. The chief sources of income were: general taxes, \$501,771 87; dividends on railroad shares, \$14,582; new state capitol, \$73,375 66. The principal items of expenditure were: military academies, \$30,010; new state capitol, \$71,514; free schools, \$77,539; jurors and constables, \$30,906; public buildings, \$53,165; salaries of public officers, \$30,090; Charleston harbor, \$42,196; legislative certificates, \$15,988. The subjects of taxation in 1856 were: 387,318 slaves, \$290,488 50; 2,984 free negroes, \$5,868; sales of merchandise, \$58,842; faculties, professions, &c., \$10,794; banks and bank stocks, \$25,879; premiums of insurance cos., \$3,936; town lots, \$73,665; 17,443,791 acres of land valued at \$10,284,001, \$61,703; total, \$532,744.—On Jan. 1, 1857, there were 20 banks and branches in the state; capital, \$14,837,642; loans and discounts, \$28,227,870; specie, \$1,197,774; circulation, \$10,654,652; deposits, \$3,502,788.—On Jan. 1, 1857, S. C. had 734 m. of railroad built, viz.: S. C. railway, from Charleston to Augusta, Ga. (with branches to Camden and Columbia), 232 m. long, capital paid in \$4,200,000; debt, funded and floating, \$2,750,000, cost of construction and equipment \$7,150,000; Charlotte and S. C., from Charlotte, N. C., to Junction near Columbia, S. C., 109 m., capital \$1,201,000, debt \$380,000, cost of construction and equipment \$1,730,000; Greenville and Columbia, from Columbia to Greenville 166 m., capital stock \$1,295,000, debt \$970,000, cost of construction and equipment \$2,000,000; N. Eastern, from Charleston to

Florence, 102 m., where it intersects the Wilmington and Manchester railroad; Cheraw and Darlington, from Florence to Cheraw, 40 m. There are several other shorter roads in the state, amounting in all to 75 m. There are also several other roads in course of construction and in contemplation. Of the former are the Blue Ridge road extending from Aiken, S. C. (where it intersects the S. C. road) in a N. W. direction to Knoxville, Tenn., and the Charleston and Savannah, designed to unite those cities by a route a few miles back from the coast; of the latter a road along the coast from Charleston to Wilmington, N. C., from Aiken, N. E. to Raleigh, N. C., from Spartanburg, N. W. to Ashville, N. C., from Greenville N. to Ashville, and from Greenville N. W. to Waynesville, N. C.—The first attempt at peaceful colonization in S. C. was made by a party of French Huguenots under John Ribault, who was sent out with 2 ships in 1562 on a voyage of exploration to Florida. Having discovered in May of that year the river St. John's, which he named the river of May, he coasted northward, and finally entered the spacious inlet which he named Port Royal, and on an island in this harbor built a fort, called Carolina, after Charles IX. of France—a name afterward extended to the circumjacent country, and still retained by 2 of the American states. He left here 26 colonists, and returned for supplies; but soon becoming dissatisfied, they mutinied, killed their commandant, and fitting up a rude craft, sailed for France. After suffering very great hardships, they were picked up by an English vessel, and taken to Europe. The next, and first permanent settlement in S. C., was made by English colonists at Port Royal in 1670, who removed the following year to old Charleston, on the W. side of Ashley river, and again in 1680 to the present site of Charleston. Under the name of Carolina, both the present states were held as a proprietary government, nominally under the celebrated model constitution, prepared by John Locke, till July, 1729, when the king bought out the proprietors, and formed the Carolinas into 2 separate royal colonies. In 1685 a large number of French Huguenots settled in S. C., and subsequently there were considerable settlements of Swiss, Irish, and German emigrants. The colony, at various times, suffered severely from Indian depredations, and was with Georgia engaged under Oglethorpe in a contest with the Spanish settlements in Florida. South Carolina was the scene of severe warfare during the revolutionary struggle, many hotly contested battles being fought with varying success, viz.: at Fort Moultrie, Charleston, Camden, King's Mountain, Eutaw Springs, Cowpens, &c. The British held the country for the greater part of the years 1780 and 1781. The very severe battle of Eutaw Springs, Sept. 1781, between Gen. Greene and Col. Stuart, in which both sides claimed the victory, was the last engagement of any importance during the revolutionary contest. Since the revolution, South

Carolina has grown into a wealthy and prosperous state, has taken an active part in national affairs, and furnished many eminent statesmen and legislators.

CAROLINA MARIA, queen of Naples, daughter of the Austrian emperor Francis I. and Maria Theresa, born Aug. 13, 1752, died at Schönbrunn, Sept. 8, 1814, married, Aug. 12, 1768, Ferdinand IV., king of the Two Sicilies, over whom she exercised an unbounded influence, which led to fatal results, especially when, in 1784, she prevailed upon the king to appoint her favorite Joseph Acton prime minister. A great share of the odium of Acton's measures fell upon the queen. In 1798, Ferdinand IV., at the instigation of Carolina, declared war against the French republic; but after the defeat of the Austrian army under Mack, the French marched upon Naples, and the royal family was compelled to fly to Sicily, and to put themselves under British protection. Cardinal Ruffo's agitation in Calabria against the French and the Neapolitan republicans, permitted the king to return to Naples in 1799; but here new intrigues were opened by Carolina, who, on this occasion, had the pernicious assistance of Lady Hamilton. In 1805, Carolina joined the coalition against Napoleon, but notwithstanding the assistance given to Naples by Russia and England, she and her husband were again expelled from their dominions. She found in the British general, Lord Bentinck, who was bent on neutralizing her injurious influence, an opponent with whom she was unable to contend. She retired and went to Vienna in 1811, and died before the restoration of Ferdinand IV. to the throne. This queen was notoriously ambitious and anxious to grasp political power, which, however, she was unable to manage, although she possessed a certain degree of ability.

CAROLINE. I. An eastern county of Maryland, bordering on Delaware, intersected by the Choptank and Marshy Hope rivers; area, 800 sq. m.; pop. in 1850, 9,692, of whom 808 were slaves. The surface is flat and the soil sandy. Productions in 1850, 835,520 bushels of corn, 42,879 of wheat, 17,422 of oats, and 41,864 lbs. of butter. Number of pupils in the public schools, 518. Capital, Denton. II. An eastern county of Virginia, with an area of 480 sq. m.; pop. 18,456, of whom 10,661 were slaves; bounded on the N. by the Rappahannock and intersected by the Mattaponi. The surface is diversified, and the soil of the river bottoms is good. Productions in 1850, 629,994 bushels of corn, 173,353 of wheat, and 663,155 lbs. of tobacco. Number of pupils in the public schools, 616; value of real estate in 1856, \$3,362, 938. Capital, Bowling Green.

CAROLINE AMALIA ELIZABETH, queen of England, daughter of Duke Charles William Ferdinand of Brunswick and the princess Augusta of England, born May 17, 1768, died Aug. 7, 1821. In 1795 she married her cousin the prince of Wales, but in the ensuing year, after she had borne him a daughter (Charlotte),



the prince, who had married her reluctantly, separated from her, and Caroline retired to a residence at Blackheath. Looked upon as the victim of a profligate husband, her position enlisted much sympathy on the part of the people at large, especially as she was known to be of a kind and generous disposition, but at the same time subjected her to serious charges on the part of her enemies. In 1808, George III. instituted an inquiry into her conduct, which absolved her from any positive dereliction of duty, without, however, acquitting her of the imputation of improprieties into which her warm and impulsive temperament was but too apt to lead her. In 1814 she received permission to visit her native town and to travel in Italy and Greece, and subsequently resided chiefly in a villa on the lake of Como. Her relation with Bergami, an Italian connected with her household and who accompanied her in her travels, gave rise to a new series of rumors disparaging to her honor. On Jan. 29, 1820, her husband ascended the throne as George IV., when a pension of £50,000 was offered her on condition that she should never return to England. The queen not only rejected this offer with contempt, but, to the consternation of the court, arrived in England on June 5 of the same year, the masses of the people, who never withdrew their sympathies from Caroline, receiving her with enthusiastic acclamations. A charge of adultery, however, was brought against her by the king before the house of lords, which, as partisan feelings were blended with the intrinsic interest of the case, created the greatest excitement in England. The house of lords, by a majority of 128 against 95, passed a bill of pains and penalties intended to apply to her case; but public opinion was so strongly in her favor, that the prosecution was abandoned by the government, Caroline remaining in the uncontested possession of her rank and title as queen, and living in regal style at Brandenburg house. The trial made the fortune of the lawyers employed on her behalf, the present Lord Brongham, the late Lord Denman, and the recently deceased Sir Thomas Wylde, and others, and furnished for a considerable time rich food to the lovers of scandal. Caroline, however, was deeply affected at the result, and the moral shock received on this occasion accelerated her death, which took place in the ensuing year. The humiliation of seeing the doors of Westminster abbey shut against her, when, in July, 1821, she presented herself to attend the coronation of George IV., was the last blow dealt out to her by her enemies before she died. Her funeral gave rise to disturbances at London and Brunswick, the people attributing her death to her opponents. Popular sympathy followed her to her grave; not that the people believed in the total purity and innocence of her life, but there was a great unwillingness to place reliance upon any charges emanating from George IV., especially when a queen was concerned whom he had treated with so much revolting brutality.

**CAROLINE ISLANDS**, or **New PHILIPPINES**, one of the great archipelagos of Oceania, between the Philippines, the Ladrões, the Marshall Islands, and Papua. They extend from lat. 8° 5' to 12° N., are spread over a space of 2,000 m. from W. to E., and are divided into numerous groups. The westernmost of these, the Palaoas or Pelew, consist of 7 large and a number of small islands, all of coralline formation. They are generally flat, and afford no secure anchorage. North-east of these is the group of Yap, the principal island of which is mountainous and rich in precious metals. The islands of Egoi, resembling the Palaoas in surface and formation, lie east of Yap; they are fertile islands, and are partly inhabited. The easternmost island, called Ulalan, is 24 m. in circumference, and has abundant supplies of water, fruit, and fish. The climate of the Carolines is mild and agreeable. The inhabitants, most of whom are of the Malay race, are generally fishermen, and make excellent sailors. The Carolines were discovered in 1543 by Lopez de Villalobos, and were named in honor of Charles V. Nominally they belong to Spain and form part of the government of the Philippines, but there are no Spanish settlements on any of them.

**CAROLINE MATILDA**, queen of Denmark, daughter of Frederic Lewis, prince of Wales, sister of George III., born July 22, 1751, died at Oello, May 10, 1773, married in 1766 Christian VII., king of Denmark, and in 1768 became mother of King Frederic VI. By her fine personal qualities she endeared herself to all around her, excepting the queen dowager, Sophia Magdalen, and Juliana Maria, the king's stepmother, who were jealous of her influence, and treated her with marked hostility. Their dislike to the young queen assumed a still more formidable character, when Struensee, the physician and special favorite of the queen, rose to supreme power in Denmark, and in concert with his royal mistress played into the hands of the liberal party, while the queen dowager and Juliana Maria were fanatical partisans of the old Danish aristocracy. At the same time grave imputations were cast by them upon the queen's honor, as in 1771 she was delivered of a daughter, which was attributed to an illicit connection with Struensee. The ruin of the queen and her favorite was resolved upon by the queen dowager and her party, and on the night of Jan. 16, 1773, during a ball at the court, Struensee, and the queen were arrested. The unfortunate minister and his friend Brandt were sentenced to death, and Caroline with her little daughter (the future duchess of Angustenburg), barely escaping the same fate, were consigned to Kronborg castle. But for Lord Keith, the British minister at Copenhagen, more stringent measures would have been taken against her; as it was, a separation from her husband King Christian (who by his semi-idiotic condition had long since ceased to possess any personal influence) was agreed upon,

and Celle in Hanover assigned to her as a place of residence, where, worn out by sorrow, she died after a few years. A monument has been erected to her in Celle. Lenzen has published a book on her last hours, containing the celebrated letter written by the queen to her brother George III., in which she solemnly asserts her innocence.

CARON, or CARRON, FRANÇOIS, a Dutch navigator, who perished by shipwreck off Lisbon in 1674. He was of a French Protestant family which had taken refuge in the Low Countries. He engaged when very young as assistant cook on board a vessel departing for Japan. During the voyage he applied his moments of leisure to the study of arithmetic, and, after his arrival in Japan, learned the native language. This acquisition rendered him especially useful to the Dutch East India company, and he became director of their commerce with Japan, and a member of their council. Colbert was at this time striving to give to France some importance in the commerce of the East Indies, and sought among foreigners men capable of seconding his views. In 1666, Caron accepted letters patent appointing him director-general of the French commerce in India; but, at the same time, other Dutch and French merchants were joined with him with the same title. Caron arrived in 1667 at Madagascar; but, finding the French offices at that island in hopeless confusion, it was decided not to remain there. He departed for Surat, which seemed a more favorable centre, and began operations there with good success. Several of his subsequent plans and operations proved unfortunate, and his imperious and avaricious character had also excited many enemies against him at court. The minister was constrained to recall him; and, that Caron might not suspect the hostile motive, it was pretended to him that his advice was needed with reference to new enterprises. He immediately embarked for Marseilles, having on board immense riches, and had already passed the straits of Gibraltar, when he was informed, by a vessel which he met, of the disposition entertained concerning him at court. He at once turned his ship about and directed his course to Lisbon. He had already anchored in this port, when a heavy sea beat his vessel against a rock, and it went to the bottom with its passengers and cargo. One of the sons of Caron alone was saved.

CARONY, or CARONI, a river of Venezuela, rises in the Sierra Pacaraima, and after a rapid course of about 400 m., broken by numerous cataracts, joins the Orinoco.

CAROOR, a town of British India, in the presidency of Madras, district Coimbatore, on the Cavery river, lat. 10° 58' N., long. 78° 9' E., 42 m. W. from Trichinopoly. It contains about 1,000 houses, has near it a fort and a large temple, and has been in the possession of the British since 1760.

CARORA, or CARORO, a town of Venezuela on the Tocuyo, in the province of Barquisimeto;

pop. 8,000. It contains a handsome parish church, a hermitage, and a Franciscan convent. The district in which it stands is famous for its aromatic balsams, resins, gums, and a kind of wild cochineal.

CAROUGE, a town of Switzerland, on the Arve, in the canton of Geneva; pop. 5,000. It was ceded to Switzerland in 1816, until which time it had been the capital of the Sardinian province of Carouge, which was suppressed in 1887. The town is regularly built, pleasantly situated, surrounded by elegant villas, and connected with Geneva by a bridge. It has manufactures of watches, thread, leather, and clay pipes.

CAROVE, FRIEDRICH WILHELM, a German critical writer, born at Coblenz, June 20, 1789, died in Heidelberg, March 18, 1852. He commenced life as an advocate, held some judicial offices, was made doctor of philosophy by the university of Heidelberg, and officiated for a short time as professor at Breslau. He was one of the founders of the Heidelberg Burschenschaft, or students' secret political association, and participated in the famous Wartburg festival. He was afterward a member of the provisional German parliament of 1848. His most elaborate works are attacks on the Roman Catholic religion, such as "The Church, which alone works our Salvation," and an "Essay upon the Celibacy of the Catholic Clergy." His powers of criticism are shown in his "Religion and Philosophy in France," "Essay on St. Simoniism," "The New French Philosophy," &c.

CARP, a malacopterygian fish, of the family *cyprinida*, genus *cyprinus*, having the body covered with large scales, a single elongated dorsal fin, fleshy lips, small mouth, with a barbel at the upper part of each corner in the common species, and a smaller one above; teeth in the pharynx, but none in the jaws; branchial rays 8; the ventrals behind the pectorals, without any connection with the bones of the scapular arch; the 2d dorsal ray and the 1st anal serrated posteriorly; the tail forked; 12 rows of scales between the ventral and dorsal fins. The *C. carpio* (Linn.), is of a golden olive-brown color above, yellowish beneath, and the fins dark brown. It inhabits the fresh-water lakes and streams of central and southern Europe, whence it has been spread by man over the northern parts. It is noticed by Aristotle and Pliny, but was not held in much estimation in ancient times; it grows rapidly, lives to a considerable age, and is exceedingly prolific; it seems to have been introduced into England about 800 years ago. They prefer quiet waters, with soft or muddy bottoms, spawning in May or June, according to locality; the food consists of larvæ of aquatic insects, worms, and soft plants, though they eat almost any vegetable food in artificial ponds. They are very tenacious of life, and will pass long periods, especially in winter, without food; they afford but little sport to the angler, being very uncertain, and are difficult to take in nets. The size

varies from  $\frac{1}{2}$  to  $2\frac{1}{2}$  feet, and their weight from 1 to 18 lbs.; they are in season from October to April, and are generally considered excellent for the table. Dr. Storer describes the common carp of Europe as having been introduced into New York from France. The gold-fish, or golden carp, is the *C. auratus* (Linn.). The crucian carp (*C. gibelio*, Bloch.), is of smaller size, and is considered by some the same as the *C. carassius* (Bloch.). In this country the name of carp is erroneously applied to some species of *catostomus* and *luxilus*, belonging to the same family of fishes.

CARPÆA, among the ancient Greeks, a kind of mimetic dance peculiar to the Ænians and Magnetes. It was performed by 2 armed men, one representing a ploughman, and the other a robber, in the following manner: The laborer, laying aside his arms, begins to plough with a yoke of oxen, frequently looking around as if in alarm. When the robber at length appears, the ploughman snatches up his arms, and a fight begins for the oxen. The movements are rhythmical, and accompanied by the flute, and at last the victor takes away the oxen and plough for his reward.

CARPANI, GRUÆPPE, an Italian dramatist and writer on music, born at Villabese, near Milan, Jan. 28, 1752, died in Vienna, Jan. 22, 1825. Having prepared himself for the profession of the law, he afterward devoted himself to literary pursuits, and produced a great number of plays and operas partly translations and partly original. In 1792 he was editor of the *Gazzetta di Milano*, and wrote violent articles against the French revolution. He was obliged to leave the city after the invasion of the French, and went to Vienna, where he was appointed censor and director of the theatre. In 1809 he accompanied the archduke John in the expedition against Napoleon. Under the title of *Haydina*, he published a series of curious and interesting letters on the life and works of his friend Haydn the composer. These letters, published in a French translation as an original work by L. A. C. Bombet, or, as other biographers state, by Beyle (known under the *nom de plume* of Stendhal), gave rise to a great literary controversy, in which Carpani vindicated his authorship most successfully.

CARPATHIAN MOUNTAINS, a mountain system in central Europe, lying N. and E. of Hungary, which it separates from Poland, Russia, and Turkey. The entire range forms a semicircle about 800 m. long, commencing at New Orsova, on the Turkish frontier of Austria, where it is separated from the Balkan range only by the Danube, and terminating in the lofty rock on which the castle of Presburg is situated. Their breadth varies from 100 to 250 m. The highest eminences are in the E. or Transylvanian section, where the peaks of Poyana-Ruska, Garlivi, and Buthest, rise to the height of about 9,000 feet. There are parts of this section, however, which have never been explored, and hardly visited by man, and of

which no measurement can be given. The highest portion of the W. or Hungarian Carpathians is found in the Tatra range, the Carpathes of the Romans. Here the Lomnitz, Gerlsdorf, and Visloka mountains send up their naked granite summits to an elevation of over 8,000 feet. The highest parts of the whole Carpathian system consist of granite. Sandstone and limestone are found at a lower level, and basalt, porphyry, jasper, petrosilex, lava, obsidian, and numerous other substances, the result of volcanic and aqueous action, are scattered in the wildest confusion among the lower ranges. No traces exist of recent volcanic eruptions, though there is unquestionable evidence of the extensive agency of fire and water at some time. The Carpathians stand preëminent among the mountains of Europe in respect to mineral wealth. Nearly every metal is produced abundantly from their sides. There are mines of silver and gold at Kremnitz and at Schemnitz in Hungary, and a gold mine at Nagy Ag in Transylvania, which has been esteemed the richest in Europe. Iron, copper, lead, and mercury, are also found in large quantities, and rock-salt lies in immense deposits throughout both sections of the chain. The Carpathians present 4 zones of vegetation, rising successively. There is first the woody region, where the oak, beech, and chestnut thrive, which reaches to a height of more than 4,000 feet above the sea. Then the *pinus abies*, or Scotch fir, appears, and occupies a zone of 1,000 feet. This is succeeded by the gloomy and useless moss-pine, which diminishes in size as the elevation increases, and at the height of 6,000 feet appears only as a small shrub, and in scattered patches. The open places of this region produce a few blue-bells and other small flowers. From the termination of the moss-pine to the summit, the mountains wear a most barren and dreary look, their conical peaks being of naked rock, or covered only with lichens; yet even at these heights, a straggling blue-bell or gentian may sometimes be found. None of the Carpathians are covered with perpetual snow. Numerous passes intersecting these mountains facilitate communication between the countries lying at their base. The most remarkable and frequented of these are those of Teregova, leading from Orsova to Temesvar; of Vulcan, forming the valley in which the Schyl flows; and of the Rothenurm in a gorge formed by the Aloota, at the foot of Mt. Szurul. This pass was the scene of one of Bem's most brilliant exploits in the late revolutionary war of Hungary. All of these passes were strongly fortified to prevent the entrance of the Turks into Transylvania, but several of them have, nevertheless, at various times been forced.

CARPATHUS, the ancient name of the island of Scarpanto, lying between Rhodes and Crete, about 80 m. from the former. Hence the surrounding sea was called *Mare Carpathium*.

CARPENTER, LANT, LL. D. an English Uni-

tarian minister, born at Kidderminster, Sept. 2, 1780, died April 5, 1840. He was of a Nonconformist family, and on the death of his father was adopted and educated by Mr. Pearsall, a relative of his mother. Designed for the ministry, he was sent in 1797 to the Northampton academy. That school being temporarily discontinued, young Carpenter was placed at Glasgow college, where, however, he did not continue the length of time necessary to take his degree. Leaving college in 1801, he spent some time in teaching, and as librarian of the Athenæum, Liverpool. While at the academy he became, in common with many of the students, obnoxious to the trustees, on account of doctrinal sentiments far from the reputed standards of orthodoxy. This defection of the students was a chief cause of the suspension of the school. At Liverpool, Carpenter's views were so clearly in sympathy with those of the Unitarian denomination generally, that he received several invitations to the pastoral charge of Unitarian congregations, and a call to a professorship in their college at York. In 1805 he finally accepted a call to succeed Dr. Thomas Kenrick at Exeter, where he continued for 12 years. In 1806, the university of Glasgow gave him the degree of LL.D., although he had applied only for the degree of M. A. From Exeter he removed to the pastoral charge of the Unitarian congregation at Bristol (1817), where he continued until his death, which occurred by falling from a vessel between Naples and Leghorn, while on a tour for his health. The body afterward floated on shore, near Porto d'Anzo, the ancient Antium, and was buried on the seashore. Dr. Carpenter's piety was of an eminently practical turn. The instruction of children was an object of constant interest. Amid all his pastoral and literary labors, which were arduous above those of most men, he always found time and energies to devote to juvenile instruction, and, even against the prejudices of his congregations, established Sunday schools among the children of Exeter and Bristol. An instance of his love of instruction is recorded in his biography, which is worthy of notice, both for the evidence it gives of his character, and as an interesting item of Sunday school history. His guardian, Mr. Pearsall, had established at Kidderminster, simultaneously with Robert Raikes at Gloucester, a Sunday school for the instruction of the children of the working classes. Carpenter was then but 11 years of age; but his practical spirit did not overlook the opportunity for a still greater service he could render to those children. They went to their work at 5 o'clock in the morning. He therefore assembled them at 4 o'clock every day in the week, and gave them lessons in arithmetic an hour before the time of their daily toil. These lessons were given in the summer under a mulberry tree, and in winter in a summer-house, without any fire. In his pastoral charges at Exeter and Bristol, he was active in coöperation with others in the establishment of libraries, schools, savings

banks, and institutions for general improvement and welfare. His published works are mainly theological and doctrinal, in support of the Unitarian sentiments he had early espoused. Among his more important works are "An Introduction to the Geography of the New Testament," "Unitarianism the Doctrine of the Gospel," "Examination of the Charges against Unitarianism," "Harmony of the Gospels," and a volume of sermons. Mild in controversy, faithful in humane labors, and practically devoted to the improvement of society, Dr. Carpenter was respected even by those who were his most decided antagonists in theology.

CARPENTER, WILLIAM BENJAMIN, an English physiologist, son of the preceding, born in the early part of this century, was originally intended for an engineer, but graduated as doctor of medicine at Edinburgh in 1839. One of his earliest papers, published in the "Edinburgh Medical and Surgical Journal," was on the "Voluntary and Instinctive Actions of Living Beings," and in these and other early papers he laid the foundations of those views which he afterward developed more fully in his "Principles of General and Comparative Physiology, intended as an Introduction to the Study of Human Physiology, and as a Guide to the Philosophical Pursuit of Natural History" (8vo. London, 1839). This work was deemed a most remarkable production for so young a man. A 3d edition appeared in 1851. After receiving his diploma in Edinburgh, he settled in Bristol, with a view of practising his profession, but accepted an appointment as lecturer on medical jurisprudence in the medical school of that city. In 1843, and subsequent years, he wrote the "Popular Cyclopædia of Science," embracing the subjects of mechanics, vegetable physiology and botany, animal physiology and zoology. These were professedly compilations, but they are well written, and contain original views on many points of interest. In 1846 he published his work on the "Principles of Human Physiology," which reached a 5th edition in 1855. Dr. Carpenter may not have repeated all the experiments of other observers, but he is able to appreciate correctly the facts observed by others; and in those departments of physiology and biology which lie beyond the region of experiment, and demand the more subtle analysis of a logical mind, the science of physiology, observes his English biographer, has probably no more accomplished exponent. In 1854 a 4th edition of his "Principles of Comparative Physiology" was published, to be followed by the "Principles of General Physiology," in 1 volume. These 2 works, with that "On Human Physiology," form 3 independent volumes, comprising the whole range of biological science as at present known. The articles on the "Varieties of Mankind," the "Microscope," on "Smell," "Taste," "Touch;" on "Sleep," "Life," "Nutrition," and "Secretion," published in the "Cyclopædia of Anat-

omy and Physiology," are also from the pen of Dr. Carpenter. Having written much as a popular disseminator, as well as an original investigator of science, he has been accused of being a plagiarist and mere compiler. In answer to this charge, he claims, in the preface to the 3d edition of his "General and Comparative Physiology," the following facts and doctrines as his own: 1. The mutual connection of vital forces, and their relation to the physical. This doctrine is fully developed in a paper on the "Mutual Relations of the Vital and Physical Forces," in the "Philosophical Transactions" for 1850. 2. The general doctrine that the truly vital operations of the animal as well as the vegetable organism are performed by the agency of untransformed cells, which was first developed in an "Essay on the Origin and Functions of Cells," published in the "British and Foreign Medical Review" for 1848. 3. The organic structure of the shells of mollusca, echinodermata, and crustacea, of which a full account is contained in the "Reports of the British Association" for 1844 and 1847. 4. The application of Von Baer's law of development from the general to the special, to the interpretation of the succession of organic forms presented in geological time. 5. The relation between the 2 methods of reproduction, that by gemmation and that by sexual union, with the application of this doctrine to the phenomena of the so-called "alternations of generations;" first developed in the "British and Foreign Medico-Chirurgical Review" for 1848 and 1849. 6. The relation between the different methods of sexual reproduction in plants; first developed in the "British and Foreign Medico-Chirurgical Review" for 1849. 7. The application of the doctrine of reflex action to the nervous system of invertebrata, especially articulated animals; first developed in the author's prize thesis, published in 1839. 8. The functional relations of the sensory ganglia to the spinal cord on the one hand, and to the cerebral hemispheres on the other.—In 1856, Dr. Carpenter published his work "On the Microscope, its Revelations and its Uses" (a 2d edition appeared in 1857), in which he displayed the same industry, accuracy, and impartiality as in his other writings. A new and thoroughly revised edition of his work on "Zoology" appeared in 1857. He has also published several interesting papers on the fossil forms of the family of *foraminifera*, and is said to be preparing a work on the structure, functions, and general history of this group of animals, for publication by the Ray society. He is now professor of medical jurisprudence in university college, London; lecturer on general anatomy and physiology at the London hospital and school of medicine; examiner in physiology and comparative anatomy in the university of London. In 1844 he was admitted a fellow of the royal society. In 1849 he gained the prize of 100 guineas offered for the best essay on the subject of "Alcoholic Liquors." This essay

was published in 1850, and acquired great popularity among all classes, but more especially among the advocates of total abstinence. Dr. Carpenter was editor for many years of the "British and Foreign Medico-Chirurgical Review," and while thus occupied with writing, he was also much engaged in lecturing. He is not an orator, nor even a fluent speaker, but he is always master of his subject, and by a clear and methodical explanation of the facts and principles of which he treats, his audience is always deeply interested. In private life he is a man of simple and ingenuous deportment, beloved and respected by all who know him. On Sunday mornings he performs gratuitously the functions of organist for a small Unitarian congregation at Hampstead, near London.—RUSSELL LANT, a brother of the preceding, officiated for some time as Unitarian minister at Birkenhead, and more recently at Hull, and is author of a volume of sermons and of the memoirs of his father.—PHILIP, another brother, is minister of the poor at Warrington, and author and publisher of many tracts for the poor and ignorant.—MARY, sister of the foregoing, a philanthropist, founder and promoter of ragged schools, and juvenile reform schools in Bristol, and one of the lecturers at the recent meeting of the association for the promotion of human science, of which Lord Brougham was author and president. She has also compiled a book, entitled "Morning and Evening Devotion," and several works of a practical character.—MARGARET, an English portrait painter, born at Salisbury in 1793, the daughter of the late Mr. Alexander Reynolds Geddes, who was an accomplished artist. Having enjoyed many opportunities of study, Miss Geddes sent at an early period pictures to the society of arts, which were favorably received, especially the study of a boy's head, for which the largest gold medal was awarded. Miss Geddes repaired to London in 1814, and married in 1817 Mr. W. H. Carpenter, who is keeper of the prints and drawings of the British museum. Mrs. Carpenter's productions have figured meritoriously for many years at the exhibitions of the royal academy and the British institution.

CARPENTRY, the art of forming combinations of timber for resisting to best advantage the effects of weight and pressure. The subject demands, 1st, the consideration of the scientific principles involved; and, 2d, the practical details of carpenters' work. The former, which can be but briefly noticed, mainly depend upon the laws governing the strength of materials, and composition and resolution of forces. To calculate the strength of the combinations resort is had to the parallelogram of forces, by the aid of which the resultant pressure is readily determined in any system of framing, however complicated. An important rule to be observed is, that stiffness or rigidity of form in any framework is of greater consequence than the comparative strength, as any modification of the latter can always be

secured by varying the strength of the different parts. The triangle being the only figure, the form of which cannot be changed except by altering the proportions of its sides, it is evident that the rigidity of framework can be best secured by the adoption of a triangular system—that is, by dividing the entire framing into a system of triangles, by means of ties and struts. The latter are the pieces employed to resist the effects of compression; the former, those of extension. This distinction must be closely observed in planning any system of framework, as a confusion in this respect might prove destructive to the entire work. When a single beam is to be strengthened by the application of a system of framing, the combination is termed a truss, and the beam is said to be trussed. In all designs for framing, this principle is to be borne in mind, that the strength of the weakest point is assumed as the strength of the entire system.—We pass now to the consideration of carpentry as a mechanical art. The materials are received by the carpenter in the form of beams, scantlings, planks, and boards, out of which he constructs the bond timbers, wall plates, and the various elements of floors and roofs. His labors are limited mainly to the skeleton of the structure—to those portions which are indispensable to its stability and efficiency; while its adaptation to the purposes of convenience and utility is intrusted to the care of the joiner, plasterer, plumber, &c. The tools employed by the carpenter are the rule, axe, saw, adze, mallet, chisels, hammers, augers, gouges, hook pins, chalk line, square, bevel, gauge, compasses, level, and plumb line. Beside these, which are indispensable, he also occasionally makes use of planes, sledge-hammers, gimlets, pincers, beetles, wedges, and crow-bars. The operations he performs are principally scarfing, notching, cogging, tenoning, pinning, and wedging. Scarfing is a mode of connecting beams longitudinally, and is performed by cutting away half the substance of each beam for a certain length, bringing the cut portions together, and fastening them by screws, bolts, straps, or wedges. Where strength only is required without regard to appearance, beams may be lengthened by “fishing,” instead of scarfing. In this, the beams are brought end to end, and lapped on opposite sides with short pieces of strong plank, which are secured by bolts which pass through both pieces and the beam between them. If bolts and straps are well applied, this form of joint is as well adapted to resist transverse as longitudinal strains. In designing scarfs, the kind of strain to which the piece is to be subjected, whether longitudinal, transverse, or a combination of both, is to be particularly considered. In the ordinary form no provision is made for resisting longitudinal strains, except so far as the bolts may answer this purpose, and also the adhesion or friction of the 2 beams. More elaborate methods of jointing are therefore devised, in

which the resistance of wood to splitting is employed to secure the pieces, which are drawn together by the aid of keys or double wedges. Bolts and straps may also be used to impart additional security. The French scarf has several indentations, and is termed *trails de Jupiter*, from its zigzag form suggesting a resemblance to sheet lightning. In scarfing bond and wall plates, it is usual to cut about  $\frac{1}{4}$  through each piece on the upper face of the one and the under face of the other, about 6 or 8 inches from the end, transversely, forming what is called a calf or kerf, and longitudinally from the end from  $\frac{1}{4}$  down on the same side, so that the 2 pieces lap together like a half dovetail. These joints are generally spiked, and it is always required that they shall fall in or under a pier, although the supervening weight of the wall and joists renders it impossible to draw them apart, except by tearing the fibres asunder or lifting the weight. Longitudinal joints are employed when the only pressure to be sustained is a vertical one. They are made quite short, as they are designed only to keep the 2 pieces in the same line. A common mode of forming these joints is to divide the end of each piece into 9 squares; then 5 of these being cut away in one piece and the 4 alternate squares in the other, the 2 beams exactly fit each other. The following summary of practice relative to scarfing is given by Barlow in “Tredgold’s Carpentry:” The length of the scarf should be, if bolts are not used—in oak, ash, or elm, 6 times the depth of the beam; in fir (pine), 12 times. If bolts and indents are combined, the length of the scarf should be—in oak, ash, or elm, twice the depth of the beam; in fir, 4 times. In scarfing beams to resist transverse strains, straps driven on tight are better than bolts. The sum of the areas of the bolts should not be less than  $\frac{1}{4}$  the area of the beam, when a longitudinal strain is to be borne. No joint should be used in which shrinkage or expansion can tend to tear the timber. No joint can be made so strong as the timber itself.—Notching is of 2 kinds, square and dovetailed, and is used in connecting the ends of wall plates, and bond timbers at the angles, in letting joists down on beams and binders, purlines, and principal rafters, &c.—Cogging is a species of notching used principally in connecting the beams to wall plates, a shallow notch of the width of the wall plate being cut out of the under surface of the beam, and a similar notch cut on the wall plate to receive the beam; the 2 notches fitting closely, all motion, whether longitudinal or transverse, is prevented. Flooring joists are often connected with trimmers or main joists in the same general manner, except that dovetailed notches are employed instead of square. As there is seldom any great amount of force tending to detach the joists from the trimmers, this form of notch may be amply sufficient; but as a rule, dovetail joints should not be employed in carpentry when the grain of one piece of

wood crosses that of the other, for the shrinkage of timber is much greater across the grain than in the direction of its length; hence dovetails are apt to wear loose after a time, and throw the entire strain upon the pins or bolts, which were originally employed only to assist the joint. When the grain of both pieces runs in the same direction, dovetails can be employed with advantage, since the shrinkage of one piece is counterbalanced by the contraction of the other, which allows the joint to remain firm. Such cases, however, occur more frequently with the joiner than with the carpenter.—Tenoning implies mortising also, both being required to connect 2 pieces by means of a small projection on one, termed a tenon, and a corresponding cavity on the other, called a mortise. Tenons and mortises must exactly correspond in size. They are generally placed at equal distances from one or the other side or edge of the 2 beams to be connected; usually, too, all angles formed in the process of tenoning, whether internal or external, are right angles. Very short tenons, termed joggles, are sometimes used for preventing lateral motion in 2 pieces of timber, as at the connections of a king or queen post with the principal rafters, or with the struts. With the same view, the ends of king and queen posts are generally tenoned into the tie-beams, and the feet of the principal rafters of a roof are also tenoned into the tie-beam. The pressure in this case being very oblique to the surface of the tie-beam, it is usual to employ bolts and nuts, or, what is better, stirrup irons or straps. In forming mortises and tenons, the latter should be made as large and efficient as practicable, with due reference to maintaining the proper degree of strength of the other piece, which by too large a mortise might be materially weakened. To avoid the danger of too great a mortise and too small a tenon, and also of lessening the efficiency of either of the 2 pieces, in consequence of the tenon being placed too high or too low, it is customary to employ a compound called a tusk-tenon for most horizontal bearings of importance, as to joists and binders, to trimmers, beams, girders, &c. The body of such a tenon is a little above the middle of the end, and runs out from 2 to 4 inches, as may be required. Below it protrudes the tusk, and above it the shoulder is cut down at an obtuse angle with the horizontal line, thus giving to the tenon the strength of the whole depth of the timber above the under tusk, and giving it a bearing in a shallow mortise, while a greater depth of the mortised piece than the tusk rests on receives the body of the tenon, thus protecting its comparatively narrow margin from under-pressure.—Pinning and wedging are resorted to when tenons have to resist not only lateral displacement, but strains tending to draw them from their mortises. In pinning, an oak pin or tree-nail or an iron bolt is driven through both the tenon and the sides of the mortise; or, the tenon being cut

long enough to extend entirely through the mortised piece, the pin may be passed through the projecting part. The latter plan is often adopted in connecting trimmers or bridging joists to the girder or main joists in flooring. In wedging, it is usual to make the tenon sufficiently long to pass just through the mortised piece; a saw-cut being then made in the projecting part, a small wedge is driven in, which causes the tenon to expand and completely fill the mortise, so that it cannot be withdrawn. Fox-tail wedging, employed when the tenon does not extend entirely through the mortised piece, is thus performed: The tenon having been exactly fitted to the mortise, 2 cross saw-cuts are made in its end, and small wedges are loosely fitted in them. In driving the tenon down, the heads of these wedges strike against the bottom of the mortise, and the wedges are thus made to enter the tenon, which they expand and cause to fill the mortise. It is usual in scarfing, cogging, and notching to cut in the shoulder with the saw, and to strike out the cheek with the mallet and chisel, or with the adze. Tenons are made entirely with the saw. Mortises are usually formed by boring at the ends with an auger, the diameter of which is equal to their width, and striking out the intervening portions with a chisel, applying this in the direction of the grain of the wood. The ends are squared with a chisel just as broad as the width of the mortise. Pins of wood must be split to insure their tenacity, and wedges cut with the saw. For these uses straight-grained stuff is to be preferred.—The bearing surfaces of framing and bearing joints should be as large as possible, and, when practicable, cut at right angles with the direction of the pressure, or (when one piece bears longitudinally upon another) in a circular arc, so that the pressure may be distributed equally over the bearing surface.—Shoring or propping up the walls or floors of a building is also performed by the carpenter, while pugging or deafening floors, furring down joists, and bracketing and cradling for plastering, &c., may be performed either by the carpenter or joiner, as less or greater precision is required.—In estimating the value of carpenters' work, the timber is usually rated by the cubic foot, and the labor by the square of 100 superficial feet, wherever it will admit of being so measured; and it is customary for the carpenter's work to be measured as soon as completed, or before the joiner and plasterer begin their labor. Bond timber, wood bricks, wall and templets are all reduced to cubic feet of timber at a certain price per foot, which includes all labor upon them. The naked flooring is estimated on the surface from wall to wall, and all the labor that has been expended upon it noted, as for instance whether the flooring be simple, double, or framed; if trimmed to chimneys, party-walls, or stairs; if notched or coggled to wall plates and partition bands; the number and size of the large timbers; ceiling joists as

notched and nailed to wall plates, and as framed or notched and nailed to binders or common joists. The superficial feet are reduced to squares for estimating the labor and nails in forming and setting the floors; then the flooring timbers are rated in cubic feet and without labor. Roofing is also estimated by the superficial square for labor and nails, the measure being made on the common rafters from ridge to heel, a full description being given of the kind of roof and the different tie-beams, king posts, straining sills, struts, purlines, pole plates, &c., that may be used in its construction, being all estimated for labor and nails. The separate timbers are then reduced to cubic feet, the measurements being taken to the extent of any tenons there may be, and the whole valued without labor. The dimensions of bolts, bars, straps, &c., are taken separately and their weights deduced. Gutter boards and beams are measured by the superficial foot, and valued according to the thickness. Centring to vaults is valued by the square, to apertures in the thickness of walls by the foot, and to camber arches by number. Quartering partitions are measured by the square for labor and nails, and by cubic feet for the material. Battening to walls is also valued by the square, but the stuff is included with the labor. If planing has been required, as sometimes happens with beams and joists, in places not to be covered by ceiling, it is rated by the superficial foot, and beading or other moulding by the running foot. Sometimes a superficial amount for labor and nails or framed timber cannot be obtained, and it is then estimated with the cost of the timber at so much per cubic foot; and in such cases a distinction must be made between different quantities, as the labor employed in framing a roof, for instance, is much greater than that required in an equal amount of timber used for flooring. The value of labor, too, depends much on the comparative hardness of the timber. The cost per cubic foot of the timber should include the original cost, and expenses of cartage added. To this the cost of 4 superficial feet of sawing may be allowed as a fair average for the different scantlings; and finally  $\frac{1}{2}$  of this increased amount for waste in cutting and working. A still further allowance is necessary for scaffolding and hoisting, especially if heavy timbers are lifted to considerable height. In shoring, as the timber is not consumed, it is usual to charge for use and waste at  $\frac{1}{4}$  of the value of the timber if much cut up, or  $\frac{1}{8}$  if but little injured; and this in addition to the charge for labor of raising and lowering.

CARPET, a sort of thick cloth, used principally for covering the floors of apartments. In its place, at a very early period, straw, rushes, and other coarse materials were used. Improving upon this, the rushes were plaited into matting, which, though homely enough in appearance, served to promote warmth and comfort. In England, where wool was obtained in abundance, a kind of coarse woollen cloth was

often seen upon the floors of the gentry. Yet as late as the time of Queen Mary rushes were strewn on the floor of her presence-chamber; though carpets had long before been introduced from the East. In Egypt their manufacture is traced back to a very remote period; and in Persia and other Asiatic countries the art practised by the hand had attained a high degree of excellence long before it was known in Europe. Purple carpets of great beauty were used at the banquets of the ancient Greeks strewed beneath their couches. The Babylonians adopting the art, ornamented their fabrics with figures of men and strange devices of fabulous creatures. These were imported by the Greeks and Romans; and, from what we know of the fabric, it appears to have been rather of the nature of tapestry, than of what we now call carpets—made by introducing tufts of woollen yarn into a warp stretched in a frame, which are held down by a woof passed over each tuft. Such is the method of carpet-weaving now practised by the Asiatics, the stitches made one by one by the slow and tedious operation of the fingers. The young girls acquire great skill in this work, and their hands and eyes are soon trained to do it with ease and rapidity. But by one of the modern machines 1,000 stitches are sooner made than one by the hand process. In Persia whole families, and even tribes, are employed in carpet-weaving. These carpets are, however, of so small a size, that they are little used. They are purchased by travelling merchants, who, in Smyrna and Constantinople, dispose of them to Europeans. Turkey carpets are imported principally from Ouchak, in the province of Aidin, about 6 days' journey from Smyrna. These carpets are also woven by families, and no large manufactory for them exists. They are in one piece; the patterns are peculiar, and no two are ever made exactly alike. Their chief beauty consists in the harmonious blending of their colors, and in the softness of their texture, rendering them agreeable both to the eye and to the foot. In the process of manufacturing the weaver sits in front of the loom, and fastens to each thread of the warp a bunch of colored yarn, varying the color according to the pattern. The row being completed, he passes a linen weft through the web, and drives it well up, so that all the bunches may be securely fastened. In this way narrow breadths of carpet are made, which are afterward laid side by side, and united, so as to form one large piece. The tufts are then pared of equal length, and being beaten down, the whole presents a smooth, even surface. Rugs are made in the same manner. A superb carpet, composed entirely of silk, was sent from Cashmere to the great exhibition in London. In each square foot it contained as many as 10,000 ties of short lengths introduced by hand. In British India the manufacture of carpets is carried on to a great extent. In Benares and Moorshedabad costly carpets of velvet with gold embroidery are made. Silk-embroidered



carpets are manufactured in various places; the woollen ones principally at Masulipatam. For many years Europe received all her supplies of carpets from the East. The manufacture is said to have been introduced into Europe by the French in the reign of Henry IV. The manufactory now belonging to the French government, and still producing excellent fabrics, was established at Beauvais in 1664 by Colbert, minister of Louis XIV. Another larger factory was at Chailiot, a league from Paris, where the carpets were worked in the manner of the modern Wilton carpet. The first successful operations in England were at Mortlake, in Surrey, to which enterprise James I. contributed £2,676. In the middle of the 18th century the business was much extended in different localities, and reference is made to a premium awarded by the society of arts in 1757 to Mr. Moore for the best imitation Turkey carpets. This kind of carpet was afterward largely produced at Axminster, in Devonshire, made even more expensive than the real Turkey by the substitution of worsted for woollen yarn; but the manufacture ceased here, and in Yorkshire also, many years ago. The other varieties of carpets in use, as the Kidderminster or two-ply, called in this country the ingrain, the three-ply, the Venetian, Brussels, and Wilton, are all made by machinery. The ingrain, made with 2 sets of worsted warp and 2 of woollen weft, consists of 2 distinct webs incorporated into each other at one operation, the warp threads passing from one to the other to bring the required colors to the surface. Each web, however, is a cloth of itself, which, if separated by cutting it from the other, would present a coarse surface like baize. Two colors only are used to best advantage in this kind of carpet, the introduction of more tending to give a striped appearance. The three-ply is also ingrained, the threads being interlaced to produce 3 webs, thus making a fabric of greater thickness and durability with the advantage of greater variety of color. The pattern, however, does not appear in opposite colors on the 2 sides in this, as it does in the two-ply. Great difficulty was experienced in applying the power loom to weaving this fabric; in Europe the idea was wholly abandoned; and in 1839 two-ply ingrains were woven at Lowell, Mass., only by the hand loom, at the rate of 8 yards a day to the loom. At this time Mr. E. B. Bigelow, of Boston, improved the power loom so that he obtained with it from 10 to 12 yards a day, and afterward by still further improvements so perfected the machinery, that the power loom is now wholly used, and with such economy of labor as to have greatly reduced the cost of carpets, and extended their manufacture to meet the increased demand. The inventions of Mr. Bigelow have been so important in this branch of manufacture, as to have given it an entirely new character; and though their full description would be too technical and detailed, a general account of those immediately connected with

this subject may properly be introduced in this place. The object sought for was a loom which should make carpet fast enough to be economical, one which should make the figures match, and produce a good regular selvage, and a smooth, even face. The hand weaver can at any moment tighten the weft thread, if too loose after the shuttle has been thrown, and so make the selvage regular; if he finds by measurement that by reason of the irregularity of the weft threads or the ingraining, the figure is being produced too long or too short, he gives more or less force to the lathe in beating up; and if he finds that the surface of the cloth is getting rough, he regulates the tension of the warps. In this way, by observation, and the exercise of skill and judgment, he can approximate, and only approximate, to the production of a good and regular fabric. In the first loom Mr. Bigelow produced, he approximated more nearly than the hand weaver to a perfect match in the figure; and this he effected by taking up the woven cloth by a regular and positive motion which was unerring, the same amount for every throw of the shuttle and beat of the lathe. As the weft threads are not spun regularly, and the weaving in of the warp threads and passing the different colors from the upper to the lower ply or cloth to produce the figures require sometimes more and sometimes less to make a given length, he determined to regulate the delivery of the warps as required by their tension, thereby throwing the irregularities into the thickness where it cannot be noticed, instead of into the length, where it would destroy the match of the figures. He accomplished this by suspending a roller on the woven cloth, between the lathe and the rollers that take up this cloth, so that when the cloth was being woven too short, which indicates a deficient supply of warps, the roller would be elevated, and by its connection increase the delivery motion to give out more warps, and *vice versa*. Still this served only to prevent the further extension of a fault already incurred. The roller, to perfectly accomplish its purpose, should have been applied to the unwoven warps, which seemed then impracticable, for when the lathe beats up the weft, these must be rigid to resist the beat, and no way was apparent to make the roller sensitive to detect and indicate the amount taken up. The warps, moreover, are necessarily all rolled up on the warp-beam with equal tension, and so can only be given out equally. The improvement was afterward perfected by Mr. Bigelow in the following manner: Each warp thread in the usual way passes through a loop called a mail, attached to a card suspended from the jacquard, and each card has suspended to it a weight, all the weights being equal. The two trap-boards of the jacquard move simultaneously, one up and the other down, and in these movements they catch or trap such of the cards (determined by the combination of cards) as are required to bring up the proper warp threads at each operation to produce the figure, leaving

down such of them as are not required at that particular operation; and when the two trap-boards are on a level, and all the warp threads connected with them are in a horizontal line, and those not connected with them hang down with the suspended weights, the lathe beats up the weft thread, which lies between the warps that are in a horizontal line, at the same time exerting a force on the weft threads previously thrown, and beating them up more closely. Now, as the warp threads are all connected at one end with woven cloth, and at the other with the beam, it follows that those which are hanging down in a bent line will receive a greater proportion of the force of the beat of the lathe than the others; and as all the warp threads in succession take this position, and all have an equal weight, it follows that each successively receives the same pull at the time the lathe beats up; thus the tendency to irregularity of surface from the varying lengths of warp threads taken up in ingraining is counteracted. The selva was made smooth and even by a contrivance which regularly gave a pull to the weft thread after the shuttle was thrown. Mr. Bigelow at last, by these improvements and others which he introduced, brought the loom to average from 25 to 27 yards a day of two-ply, and from 17 to 18 yards of three-ply carpets. His improved method of producing figures that will match was afterward introduced, and patented in 1845. The same machinery was found to be applicable to the manufacture of Brussels and tapestry carpets, the weaving of which, except by hand, was before generally considered a mechanical impossibility. With the hand loom they were made at the rate of 3 or 4 yards per day; but with the improved loom the production was increased to 18 or 20 yards per day. The carpets, too, were made more exact in their figures, so that these perfectly matched, and their surface was smooth and regular. They surpassed, indeed, in their quality the best carpets of the kind manufactured in any other part of the world. The looms of Mr. Bigelow were introduced into factories built at Lowell, Mass., Thompsonville and Tariffville, Conn., for their use, and others were established at a new place named Clinton, in Mass., where, since the year 1849, about 150,000 yards of Brussels carpeting are annually produced by the Bigelow carpet company. This town, 12 m. N. of Worcester, owes its prosperity, and its population of over 3,000, wholly to the various factories established upon the different inventions of Mr. Bigelow. Tariffville, also, now a place of over 2,000 inhabitants, had a population of only 400 in 1840. One carpet establishment there, with a capital of \$900,000, employs from 650 to 800 operatives. Thompsonville presents a similar history.—Brussels carpet is so named from Brussels in Belgium, whence the style was introduced into England in the last century. It is made upon a ground of linen weft, which is concealed by the worsted threads that are interlaced

with and cover it. The threads are commonly of 5 different colors. In the weaving these run the length of the web, and are so managed that all those required by the pattern are brought up together across the line of the carpet; before they are let down, a wooden instrument called a sword is passed through to hold up the threads; this is replaced by a round wire, which, being at last removed, leaves a row of loops across the carpet. In a yard length the number of successive lifts of the sets of colors required is sometimes as many as 320, each of which forms a row of loops. Four colors must always lie beneath the 5th, which appears on the surface, and thus the carpet, with its linen weft too, is thick and heavy. The Wilton carpet, the *moquette* of the French, differs from the Brussels in the loops being cut before the wire is removed, a groove in the flat upper surface of the wire admitting of their being cut by passing a knife along the surface. The soft ends give the carpet a rich velvety appearance. In the imperial Brussels carpet the figure is raised above the ground of the pattern, and the loops of this are cut, but not of the ground. Various methods have been devised of simplifying the processes of making the Brussels carpet. Mr. Richard Whytock, of Edinburgh, introduced an ingenious plan of using threads dyed of the colors in the succession they would be required. This was done before they were made into the warp, and by a systematic arrangement. By this means a considerable proportion of the threads was dispensed with. His looms are used by one establishment in England to the number of more than 300, producing carpets to the amount of about £500,000 annually. They are known as "patent tapestry and velvet pile" carpets. Another device is to weave the carpet in plain colors, and then print it with rollers or with blocks, after the method of calico printing. On account of the thickness of the fabric, difficulty is experienced in introducing sufficient color without going over the work many times. In doing this, the difficulty is of course increased of retaining each color within its own exact limits. Rollers were first used; but a cheap kind of carpet is now produced at Manchester, England, by block printing. Felt cloths are also printed in colors in this country, and sold to a considerable extent for carpets.—Venetian carpets (which, by the way, were never a production of Venice), are made with a heavy body of worsted warp, which completely hides the woof; this should be an alternate shoot of worsted and linen yarn. The fabric admits of little varieties of design. It is made in narrow widths for stairways and passages.—The patent wool mosaic carpet is a novel manufacture carried on by Messrs. John Crossley and Sons, of Halifax, England. A strong, plain cloth is used as a ground; upon this a pile of warp threads, first arranged over and under parallel strips of metal, which are cut out, leaving the ends like those of a Wilton carpet, is placed

and cemented with caoutchouc. If the threads were of different colors, stripes are produced, or the yarns may have been colored by Whytock's plan, or colored patterns may be obtained by another process in use. This method is principally applied to the production of small articles.—A cheap kind of carpet, of little durability of wear or color, has been extensively introduced into this country the last few years, called the hemp carpet. It is made of hempen threads, the colors running in stripes.—The carpet manufacture has increased rapidly in this country, and in England also within the last few years. In England it is estimated that there are more than 5,000 looms in operation of every description. The business is actively carried on in various parts of the United States. Reference has already been made to the successful enterprises in this branch in Massachusetts and Connecticut. There are also extensive manufactories in different places in New York, New Jersey, and Rhode Island. In Massachusetts alone the value of goods produced in 1855 was \$1,862,819; the capital invested was \$2,264,172, and the hands employed, 1,614, beside 4 manufactories of painted carpeting, 2 of rag carpets, and 2 from which there were no complete returns. In 1845 the value produced in Massachusetts was \$834,322; the capital invested \$488,000, and the hands employed did not exceed 1,034, showing in 10 years an increase in the value manufactured of about \$500,000 in Massachusetts alone. The value of carpetings of all kinds imported into the United States during the year ending June 30, 1857, was \$2,181,290, viz.: from

Russia.....	\$1,621	Canada.....	\$193
Hamburg.....	223	British W. Indies.....	103
Bremen.....	500	British E. Indies.....	89
Holland.....	225	France.....	20,495
Belgium.....	1,104	Sardinia.....	23
England.....	2,185,691	Gibraltar.....	667
Scotland.....	19,890	Asiatic Turkey.....	451
China.....	79		
Total.....	\$2,181,290		

The value of carpetings of all kinds reexported during the same period, ending June, 1857, was \$1,549, viz., to

Asiatic Russia.....	\$219
Canada.....	577
Mexico.....	60
Venezuela.....	204
Sandwich Islands.....	489
Total.....	\$1,549

**CARPINI, GIOVANNI DI PLANO**, an Italian Franciscan monk and traveller, born about 1210. In 1246 he was sent with a company of several other Franciscans on a mission to the great khan of Tartary, to convert him to Christianity, if possible, or, at least, to induce him rather to employ his arms against the Saracens and Turks than against the Christians. Carpinus travelled through Russia and along the shores of the Black sea, and finally reached the court of the Tartar monarch, in some part of the region N. of the desert E. of the Caspian. He remained here a month or more, without apparently accomplishing much, and then set out on

his return, which he effected safely, though not without much suffering. He wrote an account of his journey in Latin, an abstract of which was published in the "Voyages and Discoveries" of Hakluyt. He devoted the remainder of his life to preaching the gospel in Hungary, Bohemia, Norway, and Denmark, and died at an advanced age.

**CARPOCRATES**, or **CARPOCRAS**, an Alexandrian theologian, of the Hellenistic Gnostic school, flourished in the 2d century A. D., under the reign of Hadrian; was of a family of Christianized Jews. His theological opinions were, in many respects, similar to those of the Gnostics generally. The fundamental Gnostic idea of a Supreme Being, entirely disconnected with the affairs of the universe, was the starting point of Carpocrates. The demiurgus and the other finite spirits ruling over the material universe, were striving to keep humanity from unity with the Supreme Monad, to which it was constantly tending, on account of its having been an original emanation from him. The preexistent state of the human soul was, in the Carpocratian system, that period when it had been in perfect unity with the Supreme Monad. The demiurgus and ruling spirits have drawn it away from this sublime union, and endeavored to preserve it in expatriation. One of their methods of accomplishing it is by laws or religious duties and observances, such as self-denial and control of appetites and passions, and general humiliation and penances. Only such as rise above these tyrannous usurpations of the demiurgus and his colleagues, can attain to the true life of the soul. Consequently all religious systems were the devices of the demiurgus, for maintaining his supremacy, and the highest injury to men. This Gnostic Antinomianism developed itself into a practical life of freedom from moral restraint, which both Carpocrates and his son Epiphaneus took all pains to justify. The gratification of the appetites and passions became a duty instead of a wrong, and salvation by Jesus was only attainable on the condition of perfect abandonment to an antinomian life. All who thus abandoned themselves were saved, because by confidence in his teachings and example they thus proved themselves, in their convictions at least, freed from the power of the demiurgus. Jesus, they held, was simply a man of superior soul, who, like themselves, had the power to discern the real difficulty, and strength to achieve his own practical redemption, and point the way for others. Carpocrates and his followers rejected the gospels of Matthew and Luke, and the entire Old Testament, as the ingenious contrivance of the demiurgus to keep men in subjection. They also denied the resurrection of the body.

**CARPZOV**, a family of learned Germans, whose original name was *Carpezano*, their ancestors having left Spain in the 16th century on account of religious persecution.—**BENEDICT CARPZOV**, with whom the distinction of the family commences, was a native of Brandenburg, born

Oct. 22, 1565, died Nov. 24, 1624, and a professor of jurisprudence. He had 5 sons, 4 of whom, Benedict, August, Konrad, and Christian, followed the profession of the father.—The 5th, JOHANN BENEDICT, born June 22, 1607, died Oct. 22, 1657, professor of theology in the university of Leipsic, was a Lutheran, and devoted himself to theology. His 5 sons, David, Johann, Friedrich, Samuel, and August, all gained more or less distinction in theology, jurisprudence, and letters. To the 4th generation the line of renown descends through Samuel to 2 sons, JOHANN, born 1675, died 1739, and JOHANN GOTTLÖB. The latter was a Lutheran theologian and oriental scholar, born in Dresden, Sept. 20, 1679, died at Lübeck, April 7, 1767. He was enabled to complete his knowledge of the oriental languages, while chaplain to the Saxon and Polish embassy to England and Holland. After his return in 1704, he was pastor of several churches, and in 1713 gave public lectures at Leipsic, on homiletic, dogmatic, and pastoral theology, oriental languages, and Hebrew antiquities. In 1719 he became professor of oriental languages at the Leipsic university. In 1730 he accepted the general superintendency and first pastorate of the cathedral of Lübeck, where he died, after enjoying the incumbency for 37 years. He was an opponent of the Moravians, and wrote many works on the Trinity, and also on the canon of the Scriptures, and correlative subjects.

CARR, DABNEY, a member of the house of burgesses of Virginia, moved and eloquently supported a resolution to appoint a committee of grievances and correspondence, in consequence of British encroachments. His resolution was adopted, March 8, 1773. Carr died 2 months afterward. He married a sister of Jefferson, by whom he is described as a man of sound judgment and inflexible purpose, mingled with amiability, and of a fanciful eloquence.

CARR, SIR ROBERT, British commissioner in New England, was appointed to that office by Charles II. in 1664, in conjunction with Nicolls, Cartwright, and Maverick. In 1664, Nicolls and Carr captured New Amsterdam from the Dutch, and called it New York, in honor of the king's brother, the duke of York, afterward James II. Carr forced the Swedes and Dutch on the Delaware into a capitulation. He returned to Boston in 1665, and, in conjunction with his coadjutors, assumed the principal powers of government.

CARRA, a hamlet in the canton of Geneva, Switzerland, remarkable for its rural school for orphans and foundlings, the model on which the other schools for helpless and vagrant children in the Swiss cantons have been formed. It was established in 1820 by M. de Rochemout, on the plan of the Pon school at Hofwyl. The present number of pupils is 26, all boys, there being another establishment for girls in the same canton. The family system is carried out to its fullest extent. The school has been since its commencement under the care of M. J. J.

Eberhard, a pupil of Vehrli. The children are taught all the duties of home and farm life, each in turn having a portion of the household duties assigned to him, till all become familiar with whatever is necessary to the comfort of a peasant's home. They have usually from 1 to 3 school hours a day in summer, and from 3 to 5 in winter. The course of study includes reading, writing, spelling, arithmetic, singing, drawing, and some knowledge of surveying, geography, and natural history. The food and clothing are the same with those of the peasant class of the canton, but the food is carefully and well prepared, and the clothing kept whole and scrupulously neat. Recreation, holidays, and festivals are not forgotten, as being a necessary part of the education of the child, in the estimation of M. Eberhard. Punishments are very rare. The expenses are a little less than \$2,000 per annum.

CARRACCI. I. LUDOVICO, the founder of the Bolognese school of painting, born in Bologna in 1555, died there in 1619. His first master, Prospero Fontana, a Bolognese painter, so little appreciated his capacity that he advised him to adopt some other profession. His slowness of execution was so remarkable that his fellow-pupils called him in ridicule the ox. From Bologna he went to Venice, and studied with Tintoretto. Subsequently he visited Florence and Parma, where he gave much attention to the works of Andrea del Sarto, Correggio, and Parmigiano. The object of these varied studies was presently developed in the establishment of his school of painting, known as the eclectic school of Bologna. In this project he secured the assistance of his cousins Agostino and Annibale, who joined him in Bologna about 1585. In a few years their school was overflowing with pupils, and all the others in Bologna closed. As the head of the academy, Ludovico resided chiefly at Bologna; and his merit is more that of a teacher than of a productive artist. He has left many works at Bologna, including his fresco paintings in the Palazzo Magnani and Zampieri; his series of scenes from the history of St. Benedict and St. Cecilia, in the convent of St. Michel at Bosco; an "Assumption of the Blessed Virgin," one of his best works; and the "Birth of St. John the Baptist." He also painted many "Ecce Homos" and "Pietas." II. AGOSTINO, cousin of the preceding, born at Bologna in 1558, died in 1601. He was the son of a tailor, and when a boy was instructed in the goldsmith's art, whence he became an engraver. At the invitation of his cousin, Ludovico, he embarked in his project for founding a new school of art in Bologna, but first went through a course of studies at Bologna, Rome, Parma, and Venice. To Agostino were assigned the most important and laborious duties. He prepared treatises on architecture and perspective, lectured on anatomy, and suggested subjects for composition, drawn from history or fiction. He also proposed and awarded prizes for designs, celebrating the vic-

tor's triumph with music and song. His early predilection for engraving never forsook him, and, although his designs were numerous, he finished fewer paintings than either of the other Carracci. Among the best specimens of his paintings are "St. Jerome receiving the Sacrament before Death," at Bologna, and the "Infant Hercules strangling the Serpents," in the Louvre. III. ANNIBALE, brother of the preceding, born in Bologna in 1560, died in Rome in 1609. He was brought up to be a tailor, and was instructed in painting by his cousin Ludovico, and afterward sent to Parma and Venice, where he devoted years to the works of Correggio and the great Venetian colorists. His style was founded on the eclectic principle adopted by Ludovico. He was an industrious painter, and the works of this period of his life are numerous. His contributions to the Palazzo Magnani and Zampieri in Bologna, in which he assisted Ludovico, were highly esteemed. In 1600, by the invitation of Cardinal Farnese, he visited Rome, where, under the influence of Raphael and Michel Angelo, his style developed itself in a new form. He was employed to paint for various churches in Rome, but his chief work is the series of frescoes of mythological designs in the Farnese palace, and particularly in the gallery, which occupied him 8 years. At the commencement of this work he was assisted by Agostino; but the intercourse between the brothers, when they were not under the influence of Ludovico, was always liable to be interrupted by jealousies and disputes, and Annibale was soon left to labor alone. When the work was at length completed, the artist was rewarded with the sum of 500 crowns. Irritated by this parsimony, and enfeebled in health by long confinement, he repaired to Naples. The persecutions of the Neapolitan artists obliged him to return to Rome, where he died soon afterward. Beside the contributions to the Farnese palace, which have been frequently engraved, "St. Roch Distributing Alms," in the Dresden Gallery, a "Dead Christ supported by the Madonna," the "Resurrection," at Bologna, and the "Three Marys" in the collection at Castle Howard, are among his most celebrated works. He was one of the first to practise landscape painting as a separate department of art. IV. FRANCESCO, a brother of Agostino and Annibale, born at Bologna in 1595, died at Rome in 1622. He studied painting with his cousin Ludovico, and attempted to establish a rival school in Bologna, over the door of which he caused to be inscribed, "This is the true school of the Carracci." The project failed.

CARRARA, a city of Italy, pop. about 8,000, situated on the Avenza, in the duchy, and 59 m. S. W. of the city of Modena. Its principal edifices are the college, the ducal palace, the collegiate church, and the church of Madonna delle Grazie. An academy of sculpture was founded here by Napoleon, and a great many artists from abroad reside here to superintend the

transport of marble, or to execute works of art. The inhabitants are chiefly engaged in the preparation of marble, which is obtained from the famous quarries in the vicinity.

CARRARA MARBLE, a beautiful white marble, of fine granular texture, deriving its name from the above-described city. The Parian differs from it in being composed of the most delicate little plates or scales, confusedly united together. The magnificent chain of mountains in which the quarries of Carrara marble are situated, forms a portion of the Apennines, and is included in the former duchy of Massa Carrara. These mountains are distant about 4 miles from the seashore, and present a very imposing appearance, towering to the skies, and broken into rugged and inaccessible peaks. At the foot of some of these hills a few stunted trees are found, and higher up among the rough fissures, flocks of goats procure a scanty subsistence. The quarries, among which are those that furnished the material for the Pantheon at Rome, are about half way up the mountains, and although they have been worked for many centuries, and the annual export has long amounted to about 40,000 tons, yet the workmen are still employed upon the surface; so that we may well regard the supply as inexhaustible. The Carrara marbles are of 4 varieties. That used by sculptors, the white, granularly foliated limestone, is the most valuable. It is more easy to work than the compact limestone, its color is purer, and it is delicately transparent. The other varieties are the veined marble, with colored lines, which render it unfit for statuary; the *ravacioni*, or Sicilian, and the *basidiglio*, of a deep blue color. In working the quarries, large blocks of marble, some of more than 200 cubic feet, are loosened by blasting. When thoroughly detached, they are tumbled down or lowered to the base of the mountain, whence they are transported to Marino, the port of shipment. The value of the material varies with the quality and size of the block, the largest of these ranging from \$10 to \$15 per cubic foot. This marble range extends over many square leagues. The whole number of quarries is estimated at about 400, of which 40 or 50 are constantly worked, employing from 2,000 to 2,500 men, the wages varying from 30 to 90 cents per day. Those of the statuary marble do not exceed 12 in all, but are the most productive as well as the most valuable. They are the property of 4 or 5 of the principal families of Carrara. The labor in these mines is not entirely without danger. It not unfrequently happens that a heavy block of marble, breaking its fastenings in its descent from the mountain, crushes beneath it the men engaged in its removal. The Carrara marble, which was formerly regarded as a primitive limestone, proved an altered limestone of the oolitic period. The causes by which the change of its structure was effected have also served to obliterate all traces of the fossils which are usually found in the rocks of this period. An analysis

of the best quality of this marble by Kaeppl gives :

Carbonate of lime.....	98.7854
Carbonate of magnesia.....	0.9003
Oxides of iron and manganese, and alumina.....	0.0835
Silica, trace of phosphoric acid, and loss.....	0.0961
Quartz sand.....	0.1558

100.000

**CARRAGEEN**, or **IRISH MOSS**, a marine plant, *chondrus crispus* (see *ALGÆ*), which grows upon the rocks of the coasts of Europe, particularly of Ireland, and is said also to be a native of the United States. It is collected for the preparation of a light and nutritious food for invalids, and is particularly recommended in pulmonary and scrofulous affections, dysentery, diarrhoea, &c. It is prepared by macerating it in cold water, in which it swells without dissolving, and which removes the taste of extraneous matters mixed with it. It is then boiled in water, of which 8 pints are used to the ounce of moss. Milk instead of water makes a more nutritious preparation. It dissolves and gelatinizes, and the jelly is flavored with lemon juice, and sweetened with sugar.

**CARREL**, **NICOLAS ARMAND**, one of the founders of the Paris journal, *Le National*, born May 8, 1800, at Rouen, died July 24, 1836, at St. Mandé, near Paris. The son of a worthy merchant, he was educated at St. Cyr, and entered the army as sub-lieutenant; secretly participated in the Bédout conspiracy in 1821, but eluded suspicion. His political opinions became known on the occasion of the outbreak of the Spanish revolution. A letter he had written to the cortes came into the hands of his colonel, when he resigned his commission, and entered into the foreign legion in Spain. When the French army invaded the peninsula, Carrel was made prisoner, and arraigned before a French court-martial, who declared their incompetency; but on an appeal to the court of cassation, he was sent before another tribunal, by which he was sentenced to death, as having carried arms against his own country. On account of some informality, the verdict was not carried out; and Carrel was tried before a 3d court-martial at Toulouse, which acquitted him. He was now engaged for a few months as an amanuensis to the historian Thierry; then he wrote 2 essays on the history of Scotland and of modern Greece, and a biographical notice of Paul Louis Courier, the French pamphleteer; he was also editor of the *Revue Américaine*, a short-lived monthly, and an occasional contributor to several leading opposition papers, such as the *Constitutionnel* and the *Globe*. But he did not gain much literary reputation until the appearance of his *Histoire de la contre-révolution en Angleterre*, which was favorably received. With a view of finding an outlet for his political opinions, with Thiers and Mignet he founded the *National*. Thiers, being the oldest and the best known of the 3, was the leading editor, while Carrel wrote chiefly for the literary department of the paper.

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The *National* greatly contributed to bring about the revolution of 1830; but while, on the first signs of a collision, Thiers left Paris, and Mignet kept still, Carrel came out with his wonted audacity, and participated in the battle. When it was over, he was sent on a mission into the western departments; his wise measures and personal influence contributed to maintain tranquillity there. During his absence he had been nominated prefect of the department of Cantal; he declined the appointment, and went back to the *National*, of which he now assumed the chief editorship. Under his control, and chiefly by his contributions, the *National* became a most vigorous and eloquent journal, and gave to the republican party a standing which it never had before. The frankness and boldness of his course drew on him the anger of the government, but the measures taken against him, however trying, could not damp his ardor. He was the first to vindicate the memory of Marshal Ney before the court of peers; and his generous temerity would have been severely punished, if he had not been supported by Gen. Excelmans, himself a peer of France. His quickness of temper, enhanced by exaggerated chivalric notions, involved him in several duels. Previous to the revolution of July, he had espoused a quarrel brought about by an article from the pen of Thiers, and fought for his colleague. In 1833, threats having been uttered against the opposition by the legitimists, Carrel came out as the champion of the former, and had an encounter with Roux de Laborie, in which both were wounded, Carrel very severely. This circumstance elicited many evidences of the admiration he had won even in the ranks of his political opponents.—Three years after, Émile de Girardin challenged him; they fought at Vincennes, with pistols; Girardin was slightly wounded in the thigh, and Carrel received a ball in the abdomen. He was taken to St. Mandé, to the house of one of his friends, and after 2 days' suffering breathed his last. On the news of his wound spreading through Paris, crowds of citizens flocked to St. Mandé, and the deepest sympathy was manifested among all classes; his death was considered a public calamity. A new edition of his works was published in Paris in 1858, in 6 volumes.

**CARRENO MIRANDA**, **JUAN DE**, a Spanish painter, born in 1614, died in 1685. As a colorist, the Spaniards rank him with Titian and Vandyke. His principal paintings are a "Magdalene in the Desert," at Madrid; a "Holy Family," at Toledo; and a "Baptism of our Saviour," at Alcala de Henares.

**CARRER**, **LUIGI**, an Italian poet, born in Venice in 1801, died Dec. 23, 1850. He officiated as professor of philosophy at Padua, from 1830 to 1833, when he went to Venice, where he conducted a literary journal for 9 years, during which time he was also appointed by the municipal council professor in the school of arts and sciences, and director of the museum.

Here he published several works, the most popular of which is the "Ring with Seven Diamonds" (*L'Anello di Sette Gemme*), a poetic description of the history and customs of Venice. His lyric poems are his best productions.

CARRERA, the name of 3 brothers who distinguished themselves as revolutionary leaders in Chili against Spain, during the war of independence at the beginning of this century. — José MIGUEL, the eldest and most celebrated, was captured by the Spaniards and beheaded at Mendoza, Sept. 1, 1821; the 2 younger brothers were beheaded at Mendoza on the same day, April 8, 1817, 5 months after their capture.

CARRERA, RAFAEL, ruler of Guatemala, born in the city of Guatemala in 1814, of mixed Indian and negro blood. In 1829, when Morazan was president of the federal government, Carrera became a drummer-boy in the regiment of Col. Aycumena. Subsequently he retired to the village of Metaquasquintla, where he married a woman of singularly energetic character, his constant companion throughout his subsequent career. At that time the property and privileges of the church were assailed by certain partisans of immediate reform, while the Indians were generally wedded to the system of laws familiar to them for nearly 8 centuries, but which was about to be supplanted by Livingston's Louisiana code. Great discontent was thus excited among them, when an insult offered to his wife by a government officer roused Carrera to action. Bent on vengeance, he placed himself, in 1837, at the head of a band of insurgent mountaineers. Enlisting in a remarkable degree the sympathies of the Indian population, the rebellion made rapid strides. Strengthened at every defeat, he was in turns courted and caressed by Barrundia and other members of the 2 opposite factions which divided the government. In Feb. 1838, he occupied the city of Guatemala with 6,000 Indians, and young as he was, he succeeded in restraining his followers from the anticipated pillage and massacre. Some accommodation among the conflicting parties now followed, and Carrera, in the general terror, was sent to Meta, a neighboring district of the interior, in an official capacity, to which a salary was attached. On April 18, 1839, he again occupied the capital, which he has since held. Ruling at first as general-in-chief, he was elected, March 21, 1847, to the presidency of Guatemala. In Feb. 1851, with only 1,500 men, he defeated the combined forces of San Salvador and Honduras, since when peace has been preserved. He was re-elected Oct. 19, 1851, as president for life. In the earlier part of his career he was regarded as the enemy of order and civilization. As the leader of an unbridled mob, in 1838, inflamed with political animosities, his conduct was naturally controlled by the exigencies of the occasion. But of late years he has verified the opinion, early entertained and expressed by the

late John L. Stephens, in regard to his sincerity and honesty of purpose. When first elected to the presidency he did not know how to read and write, but has since in some measure repaired the deficiencies of his education. His government is absolute.

CARRETTO, FRANCESCO Saverio, marquis, a Neapolitan minister of police, born in Salerno toward the end of the 18th century. He fought his way to distinction in the army, and, although a member of the carbonari, was in 1823 appointed general inspector of police. In 1828 he marched at the head of 6,000 men to quell an insurrection, of which the little town of Benevento was the focus. After destroying the town, he immediately caused a pillory to be erected upon its ruins, and had 20 persons executed, including an old man of 80 years. This drew upon him the wrath of the Neapolitans. The king, Ferdinand II., however, appointed him minister of police in 1831. For some time he exercised almost absolute power in Naples. In 1837, when the cholera raged in Sicily, and the people, in their despair, contended that it had been intentionally brought into the country by the government, Carretto was despatched to Catania, where the insurgents had organized a provisional government; and although this, on his arrival, had already been abandoned, he again exercised his authority by ordering the execution of more than a hundred persons, even applying the torture to the prisoners. The king was finally compelled to yield to the clamors of the people, and dismiss him. In the night of Jan. 27, 1848, he was arrested by Gen. Filangieri, and put on board a French steamer, as exile to France. When the name of the passenger became known at Leghorn, the supply of coals was withheld from the steamer. In Genoa he was not permitted to go on shore. He afterward returned to Naples, but was not restored to office.

CARRIACOU, the largest of the Grenadine islands, in the British West Indies, 7 m. long and from 2 to 4 broad. It is well cultivated, and produces good crops of cotton. The town and harbor of Hillsborough are on its W. side.

CARRICKFERGUS, a maritime district of Ulster, Ireland, surrounded by the county of Antrim on all sides save the S., which is washed by the bay of Carrickfergus; area, 26 sq. m.; pop. in 1851, including the town, 8,520. Inland it is in general hilly, but toward the sea the hills gradually disappear, and the country spreads out into an alluvial plain. Oats, potatoes, cattle, and cheese are produced. The fisheries are valuable, and the oysters are famous. A vein of rock salt of remarkable purity and great thickness has recently been discovered. This county belongs to the diocese of Connor, and its entire ecclesiastical income inures to the benefit of a single rector. — CARRICKFERGUS, the capital, pop. in 1851, 3,543, extends about 1 m. along the shore of Carrickfergus bay. It consists of 8 parts: the old or walled town in the centre, the Irish quarter on

the W., and the Scotch quarter on the E. The inhabitants of the last-mentioned quarter are chiefly fishermen, descendants of a colony whom religious persecution drove thither from the opposite coast of Scotland in the 17th century. There is an old castle, once very strong, and still fortified. The other public buildings worthy of note are the parish church, an antiquated structure in the form of a cross, and the court-house, a neat building recently erected. There are 8 flax-spinning mills, a muslin bleach-green, and a linen bleach-mill and green in the vicinity, and some trade is also carried on in tanning, brewing, and distilling. In ancient times the town was frequently attacked by the Scots. William III. landed here, June 14, 1690. In the roads opposite the town, the British sloop of war Drake was captured by Paul Jones, April 24, 1778. The town sends one member to parliament.

CARRICKMACROSS, or MAGHEROSS, a market town in the county of Monaghan, Ireland, 50 m. N. N. W. from Dublin; pop. in 1851, 2,534. The town was granted by Queen Elizabeth to the earl of Essex, who built here a castle, the ruins of which are now among the most interesting objects of the place. The estate still remains in the possession of the earl's family. On the W. side of the town are the residences of the Shirley family, the principal proprietors of the district. There are in the town a brewery, malt stores, and a distillery.

CARRIER, JEAN BAPTISTE, a notorious member of the French convention, born in 1756 near Aurillac, died Dec. 16, 1794, in Paris. Taking his seat in the national convention in 1792, he supported the establishment of the revolutionary tribunal, voted for the death of Louis XVI., presented a motion for the arrest of Philip Egalité, duke of Orleans, and participated actively in the popular rising of May 31, against the Girondists. His revolutionary zeal caused him to be sent to Normandy, then to Nantes, where he arrived Oct. 8, 1793. The western departments were troubled by civil war, and he surrounded himself with ferocious men, ordered numerous arrests, and sent victims to the scaffold on the slightest suspicion. He soon dispensed with even a show of trial; without any judicial proceedings, prisoners were murdered by wholesale; and as the guillotine did not afford sufficient means of execution, boats provided with valves were procured, which, after receiving on board hundreds of prisoners, were towed to the middle of the Loire, where they were sunk to the bottom with their human cargo. The first of these dreadful executions consisted of 94 priests; several others took place in which women and even children were mingled with men in every stage of life. The unhappy beings were confined in a vast building called the warehouse; every day, at night-fall, numbers of them were summoned on board the fatal boats, and their death was hidden in the darkness of night. He also invented the so-called "republican marriage:" the victims

were tied in couples, sometimes a man and woman together, then hurled into the river by the executioners; sometimes forced from the boat by the sword or bayonet. Meanwhile numbers of prisoners were also shot in the quarries in the vicinity of Nantes. The convention was for a while kept ignorant of these monstrous scenes; the killing of prisoners he reported as the "translation of culprits." The citizens of Nantes themselves did not dare to denounce him, as they were under the impression that he acted in accordance with the orders of the convention. At last the assembly became aware of the real state of things, and Carrier was recalled by the committee of public safety. Strongly denounced by public opinion, he was arraigned before the revolutionary tribunal, Nov. 26, 1794, and sentenced to death.

CARRIER PIGEON (*columba livia*). This, the *pigeon prié* of Bélon, the *pigeon domestique* of Brisson, the wild rock pigeon of the British, and the *colommen* of the Welsh, is the stock from which ornithologists generally now agree that the domestic pigeon is derived. "Under this species," writes Mr. Selby, "we include not only the common pigeon, or inhabitant of the dovecot, but all those numerous varieties, or, as they are commonly called, races of domesticated pigeons so highly prized, and fostered with so much care and attention by the amateur breeder, or pigeon fancier; for, however diversified their forms, color, or peculiarity of habit may be, we consider them all as having originated with a few accidental varieties of the common pigeon, and not from any cross of that bird with other species, no signs or marks whatever of such being apparent in any of the numerous varieties known to us. In fact, the greater part of them owe their existence to the interference and art of man; for, by separating from the parent stock such accidental varieties as have occasionally occurred, by subjecting these to captivity and domestication, and by assorting and pairing them together as fancy or caprice suggested, he has, at intervals, generated all the various races and peculiar varieties, which, it is well known, when once produced, may be perpetuated for an indefinite period, by being kept separate from and unmixed with others, or what by those interested in such pursuits is usually termed 'breeding in and in.' Such also, we may add, is the opinion of the most eminent naturalists as to their origin; and it is strongly insisted on by M. Temminck, in his valuable *Histoire générale naturelle des pigeons*. Indeed, the fact that all the varieties, however much they may differ in size, color, or any other particulars, if permitted, breed freely and indiscriminately together, and produce a progeny equally prolific, is another and a convincing proof of a common origin; for it is one of those universal laws of nature, extending even to plants, and one which, if once set aside and not enforced, would plunge all animated nature into indescribable confusion, that the offspring produced by the intercourse of different spe-



cies, that is, distinct species, is incapable of further increase." The varieties of this bird, produced under the fostering hand of man, the tumblers, croppers, jacobines, runts, turbits, owls, nuns, &c., would fill a volume; the carrier, however, demands especial notice. The carrier pigeon is a bird larger than the common pigeon, measures about 15 inches in length, and weighs about 1½ lb. The neck is long, and the pectoral muscles very large, indicating a power of vigorous and long-continued flight. An appendage of naked skin hangs across its bill, and continues down on either side of the lower mandible. According to its size and shape the amateurs of carrier pigeons estimate the value of the bird. They consider those pigeons the best that have the appendage rising high on the head, and of considerable width across the bill, and that are also distinguished by a wide circlet round the eyes, destitute of feathers. The instinct which renders this bird so valuable is its very strong love of home, which is, in some degree, common to all the domesticated varieties. The mode of training them in Turkey, where the art is supposed to be carried to the greatest perfection, is this: The person who has the charge of rearing and training them watches for the arrival of the young pigeons at the full strength of wing, and then takes them in a covered basket to a distance of about ¼ mile from their home; they are then set at liberty, and if any of them fail in returning home from this short distance, they are considered stupid, and are rejected as valueless. Those that return home are then taken to greater distances, progressively increased from 2 to 1,000 miles, and they will then return with certainty from the furthest parts of the kingdom. In England, it is usual to keep these birds in a dark place for about 6 hours before they are used; they are then sparingly fed, but have as much water given them as they will drink. The paper on which the message is written should be carefully tied round the upper part of the bird's leg, but so as in no wise to impede its flight. In older times, it appears, from an English ballad, and from a line in Tasso, that the original way of suspending the despatch was from the wing, or round the neck, but the above method is that now adopted. The antiquity of the application of these birds to the purpose of bearing intelligence to distant parts or persons, and the perseverance with which some varieties (that which is named, from its peculiar fitness, the carrier, more especially), when well trained, will return from long distances, is well known; but it is not known when, or by whom, the pigeon was first applied to this purpose. "The same faculty which in comparatively modern days was degraded to giving notice to the authorities that the finisher of the law had done his duty, on Tyburn hanging days—Hogarth's graphic record of the custom will occur to most—which afterward sank to being the bearer of the news of the

prize ring, and nowadays conveys the price of stocks to and from the continent, or brings the first intelligence of the winner of the Derby, kept Hirtius and Brutus constantly informed of each other's designs and movements, as Antony the besieger felt to his cost. In vain did he spread his nets, and try every stratagem to baffle these couriers of the air; he had the mortification of seeing them going and returning every morning over the beleaguered walls of Messina. Anacreon's dove" (see his ode *Εἰς Περικλέα*) "was employed on a more gentle mission; and Taurosthenes sent one decked with purple to his happy father, in the island of Ægina, with the news of his victory at the Olympic games, on the day of the pigeon's arrival. We have the authority of Sir John Mandeville—he who made his way to the border of China, in the reigns of the second and third Edward—that the Asiatics used them for the same purpose as the Romans. During the crusade of St. Louis, they were so employed; Tasso presses them into service in the siege of Jerusalem," making Godfrey defend one when attacked by a falcon; and Ariosto makes the castellan di Damietta spread the news of Orrilo's death by a messenger dove. "The rapidity of the flight of some of the species," says Mr. Broderip, "is almost incredible. The passenger pigeon has been shot in the neighborhood of New York, with its crop full of rice, which the bird could not have procured nearer than the rice fields of Georgia and Carolina. Audubon, who relates this startling, but, I believe true fact, observes that, as their power of digestion is so great that they entirely decompose food in 12 hours, the birds which were killed in the neighborhood of New York must have travelled between 800 and 400 miles in 6 hours. The passenger pigeon would thus, as Audubon observes, be enabled, were it so inclined, to visit Europe in less than 3 days." With all deference to Mr. Audubon's opinion, however, something more than inclination would be required by the bird to enable it to pay the visit intimated; for, rapid as are its powers of digesting food, equally rapid is the failure of strength when deprived of food; and a bird can no more endure many consecutive hours of total privation of sustenance than a man can support as many consecutive days; so that unless the passenger pigeon were to take a wallet of rice under his wing, he would have but little chance of reaching the term of a 3 days' journey, unless he should calculate on stopping *en route*, and taking a meal on board one of the mail steamers, as at a half-way house, and on finding a second on which to roost, since the pigeon is not nocturnal.—The ordinary rate of the flight of carrier pigeons is not generally held to exceed 30 miles an hour. Wagers have been laid to determine the rate of a carrier pigeon's flight. "In 1808, a young man in the borough undertook that his pigeons should fly 85 miles in an hour. Three were thrown up at 5 o'clock in the evening beyond Tunbridge Wells, and arrived at their owner's res-

idence in 53 minutes, thus beating time by 7 minutes. A gentleman laid a wager on this event, and he sent a pigeon to Bury St. Edmund's, with a request that the bird, 2 days after its arrival there, might be thrown up as the clock struck 9 in the morning. This was done, and at 11½ o'clock that morning the pigeon was shown at the Bull inn, Bishopegate, into the loft of which respectable establishment it had entered, having made its way to that point in London in 2½ hours, and having traversed 73 aerial miles in that time. When the annual trial of the prize for the best carrier pigeons was decided at Ghent on June 24, 1833, 24 birds, which had been conveyed from that place, were thrown up at Rouen at 55 minutes past 9 o'clock in the morning. The distance is 150 m., be the same, in lawyer's phrase, more or less, and the first pigeon arrived in Ghent in 1½ hour; 16 came in within 2½ hours, and 3 in the course of the day; 4 were lost. If this statement be correct, the first bird more than trebled the usual rate of a carrier pigeon's flight, and covered at least 90 m. in the hour. It is said that wild ducks have been known to perform this rate in passing headlands.—The education of carrier pigeons is entirely progressive; the distance flown being gradually and slowly increased from ½ mile up to 20 or 30 miles. When the bird is able to accomplish this, he may be trusted to fly any distance overland, within the limits of physical power. The younger the bird is, if it have strength to fly well, the greater is the chance of educating it to be a good bearer of a despatch. If this drilling be not commenced early, birds of the best breed cannot be trusted. When thrown up, the bird rises, and when it has reached a good height, will at first fly round and round, and then make off, continuing on the wing without stop or stay, unless prevented, till its well-known home is reached. A word to the wise: One should never throw up his bird in a fog or hazy weather, or 'tis ten to one against its reaching its destination, or ever being seen again. The spiral flight, when the birds are thrown up, is evidently a flight of observation, and when they catch sight of any well-known landmark, away they go homeward. But they are lost if no such objects are in sight. Thus pigeons, when loosed from a balloon at a great height, have, after flying round and round, returned to the balloon, for want of objects to guide them in their homeward flight. And yet there is on record a wonderful instance of their return to their domicile under circumstances of great difficulty, to say the least of it, as far as guide marks are concerned. The battle of Solebay was fought May 28, 1672. Capt. Carleton was a volunteer on board the London man-of-war in that engagement, and he relates that, on the first firing of the London's guns, a number of pigeons, kept in the ship, of which the commander was very fond, flew away. Nowhere were they seen near during the fight. It blew a brisk gale next day, and

the British fleet was driven some leagues to the southward of the place where the birds forsook the ship. The day after, back came the pigeons, not in one flock, but in small parties of 4 or 5 at a time, till all the birds were safe on board. This unexpected return caused some conversation on board, when Sir Edward Spragge told those who expressed their surprise, that he brought those pigeons with him from the straits, and that when he left the *Revenge* for the London, all those birds, of their own accord, without the trouble or care of carrying, left the *Revenge*, and removed with the seamen to the London." This is the more remarkable, since the birds in question, in so far as appears, were not carriers, but only common dovecot pigeons; and it goes far to corroborate the opinion expressed at the beginning of this paper, that the forms, colors, and habits, even to those which appear most characteristic and instinctive, of these birds, are merely varieties developed by care and education from accidental occurrences; as this incident clearly indicates the original instinct of returning to an accustomed home, as existing strongly in the original unimproved stock. Nor is it one whit more strange that this educational faculty of carrying should be converted, by a long course of teaching generation after generation, into an hereditary instinct apparently natural in the pigeon, than that the same thing should occur, as it is known to every sportsman that it does, in the pointer and setter, in reference to backing and pointing, naturally, without the breaker's aid.

CARRO, JEAN DE, a champion of vaccination, born in Geneva, Aug. 8, 1770, died at Carlsbad, in Bohemia, March 12, 1857. Taking up his abode in Vienna in 1795, he became celebrated by his efforts in spreading Jenner's system of vaccination as a protection against small-pox, in Germany, Hungary, Poland, and Russia. In 1800 he sent a quantity of virus to Lord Elgin at Constantinople, together with a work of his own, translated into Turkish, on vaccination. The attempts of the English to introduce vaccination into India having been unsuccessful, because the virus had always been deteriorated on the way, Carro was induced to procure the vaccine matter from cows of Lombardy, and send it to Dr. Harford at Bagdad. This retained all its strength, and was the means of introducing the benefits of kine-pox inoculation into India. The Indians consider it to be derived from a sacred cow, to which they give the name of *amurtum*, or immortality. Carro published his "Observations and Experiments on Vaccination," in the French language, at Vienna in 1801-'2. He also published a translation of an English work by J. J. Loy, on the origin of the kine-pox virus. These works are very valuable; and there are some letters written by him in Aug. 1808, on the anti-pestilential nature of the kine-pox matter, which are preserved in the library of the British museum. He resided at Carlsbad from 1825 to the time of his death, and published there an annual almanac,

also several esteemed publications on the springs of that famous watering place; his last work on the subject, entitled *Vingt-huit ans d'observations et d'expérience à Carlsbad*, appeared in 1858.

CARROLL, the name of counties in 14 of the United States. I. An E. co. of N. H., watered by numerous small streams; area about 560 sq. m. Lake Winnepesaukee separates it from Belknap co. on the S. W., and within its own limits are several smaller lakes and ponds. The surface is mountainous and broken, Ossipee mountain and Conway peak being the principal summits. The soil is productive, but much labor is required for its cultivation. In 1850 it yielded 147,715 bushels of Indian corn, 50,467 of oats, 840,278 of potatoes, 84,675 tons of hay, and 570,188 lbs. of butter. There were 25 flour mills, 49 sawmills, 40 churches, and 6,281 pupils attending public schools. The county was named in honor of Charles Carroll of Carrollton, one of the signers of the declaration of independence. Capital, Ossipee. Pop. in 1850, 20,157. II. A N. co. of Maryland, with a hilly surface, and a thin, rocky, but carefully improved soil. It borders on Pennsylvania, is drained by the sources of Patapsco and Gunpowder rivers, and comprises an area of 500 sq. m. In 1850 it produced 265,007 bushels of wheat, 343,008 of Indian corn, 223,179 of oats, and 444,759 lbs. of butter, beside considerable quantities of copper and iron ore, cotton and woollen fabrics, leather, and various manufactures. Two newspapers were published in the county. There were 40 churches, and the public schools numbered 708 pupils. Capital, Westminster. Pop. in 1850, 20,616, of whom 975 were slaves. III. A S. W. co. of Va., area 440 sq. m., bordering on N. C., bounded W. by New or Kanawha river, and extending S. E. to the Blue Ridge. The land, though rough and hilly, is generally fit for cultivation or grazing, and produced in 1850, 132,189 bushels of Indian corn, 11,578 of wheat, 82,847 of oats, 2,715 tons of hay, and 56,178 lbs. of butter. Horses, cattle, and swine are raised, and there are mines of copper, iron, and lead. Grayson sulphur springs, on New river, are much resorted to in summer. Carroll co. was formed from Floyd in 1842. Capital, Hillsville. Pop. in 1850, 5,909, of whom 154 were slaves. Value of real estate in 1856, \$4,282,851. IV. A W. co. of Ga., bordering on Ala.; area, 572 sq. m. The Chattahoochee and the Tallapoosa are the principal rivers. The surface is mountainous, and the soil, which rests chiefly on a granite foundation, is fertile in many parts of the county. One or two gold mines are worked with profit. The agricultural productions in 1850 amounted to 1,243 bales of cotton, 816,871 bushels of Indian corn, 40,803 of oats, and 73,943 of sweet potatoes. There were 840 pupils attending public and other schools. The county was formed in 1826. Capital, Carrollton. Pop. in 1855, 10,526, of whom 1,879 were slaves. Value of real estate

in 1856, \$1,218,628. V. A central co. of Miss.; area about 850 sq. m. The surface is level, and the soil alluvial and remarkably fertile. The Yazoo river, on the W. border, is navigable by steamboats at all seasons. Productions in 1850, 17,989 bales of cotton, 727,340 bushels of Indian corn, 176,360 of sweet potatoes, and 82,123 of oats. Number of pupils in the public schools, 623. Capital, Carrollton. Pop. in 1850, 18,492, of whom 9,812 were slaves. VI. A N. E. parish of La., bordering on Ark., area, 1,050 sq. m., between the Mississippi river and Boeuf bayou. The surface is generally level. In 1855 the productions amounted to 35,567 bales of cotton, and 386,310 bushels of Indian corn. The value of real estate was \$5,507,683. Pop. in 1855, 10,945, of whom 8,445 were slaves. Capital, Providence. VII. A N. W. co. of Ark., bordering on Mo.; area, 1,038 sq. m. Most of the land is fertile and diversified by hills, plains, and valleys. Several quarries yield excellent variegated yellow marble. The harvest of 1854 amounted to 401,385 bushels of Indian corn, 20,288 of wheat, and 32,005 of oats. Capital, Carrollton. Pop. in 1854, 6,787, of whom 205 were slaves. VIII. A W. co. of Tenn., with a flat surface, an excellent soil; area, 625 sq. m. There are extensive forests of oak, hickory, maple, and black walnut. Agriculture is in a forward state, and the productions in 1850 were 801,175 bushels of Indian corn, 108,029 of oats, 2,962 bales of cotton, 817,145 lbs. of tobacco, and 107,743 of butter. Number of pupils in the public schools, 671. Capital, Huntingdon. Pop. 15,967, of whom 3,135 were slaves. IX. A N. co. of Ky., bordering on Ind., bounded by the Ohio river on the N., intersected by the Kentucky; area, about 200 sq. m. In the N. part the surface is occupied by steep hills; elsewhere the land is undulating and fertile. Most of the soil is calcareous, and limestone is abundant. The productions in 1850 were 354,510 bushels of Indian corn, 12,253 of wheat, 18,604 of oats, 232,612 lbs. of tobacco, 12,733 of wool, and 3,256 of flax. There were 12 churches in the county, and 500 pupils attending public schools. Capital, Carrollton. Pop. 5,526, of whom 949 were slaves. X. An E. co. of Ohio, area 360 sq. m., well watered, fertile, and moderately hilly. Hard coal and iron are the principal minerals. The agricultural products in 1850 were 230,931 bushels of Indian corn, 263,755 of wheat, 221,083 of oats, and 11,571 tons of hay. Cattle and swine are extensively raised, and constitute a considerable proportion of the wealth of the inhabitants. In 1850 there were 71 churches, and 3,330 pupils in the public schools. Capital, Carrollton. Pop. 17,685. XI. A central co. of Ind., area 378 sq. m., drained by the Wabash and Tippecanoe rivers. The soil is extremely productive, and the surface diversified. About  $\frac{1}{4}$  is prairie land, the remainder being covered with forests of beech, walnut, oak, and sugar maple. In 1850 the county produced 549,832 bushels of Indian

corn, 133,371 of wheat, 53,076 of oats, and 4,397 tons of hay. There were 9 churches, and 1,250 pupils attending public schools. Capital, Delhi. Pop. 11,015. XII. A N. W. co. of Ill., area, 416 sq. m., separated from Iowa on the W. by the Mississippi river. The surface is rolling, and divided between prairie lands and forests. The productions in 1850 amounted to 186,801 bushels of wheat, 218,061 of Indian corn, 74,684 of oats, and 100,986 lbs. of butter. There was only 1 church, and the public schools numbered 1,185 pupils. There are extensive lead mines. Capital, Mount Carroll. Pop. in 1855, 7,610. XIII. A central co. of Mo., area 700 sq. m., lying between the Missouri river on the W. and Grand river on the E. The surface is somewhat uneven, and in many places is covered with thick forests of oak, black walnut, and other trees. The soil, which rests on beds of limestone and sandstone, is generally productive. In 1850 it yielded 311,675 bushels of Indian corn, 26,459 of wheat, 34,055 of oats, and 289,869 lbs. of tobacco. There were 9 churches in the county, and 321 pupils attending public schools. Capital, Carrollton. Pop. in 1856, 9,668, of whom 1,248 were slaves. XIV. A central co. of Iowa, drained by Racoon river, area about 600 sq. m., with a healthy climate and a fertile soil. It has been recently erected, and very little of the land is yet improved. Coal, iron, building stone, and timber are abundant. Pop. in 1856, 251.

CARROLL, CHARLES, of Carrollton, a patriot of the American revolution, born at Annapolis, Md., Sept. 20, 1737, died Nov. 14, 1832, the last surviving signer of the declaration of independence. His parents were of the Roman Catholic faith, and in 1745, when he was 8 years old, he was taken to the college of English Jesuits at St. Omer, where he remained 6 years, and then went to a college of French Jesuits at Rheims. After 2 years he went to Bourges to study the civil law, and after remaining there 1 year, spent the next 2 in Paris, whence he repaired to London and began the study of law in the Temple. In 1764 he returned to America, and in 1768 married Mary Darnell. He inherited a vast estate, the last of the manorial grants of Maryland, and at the commencement of the revolutionary war was considered the richest man in the colonies. His property would be considered large now, and at that period, when such fortunes were scarcely known, was probably little short of 3 millions of dollars. He soon began to employ his pen in defence of the colonies against the claims of the mother country. In 1770-'71 he wrote articles under the signature of "The First Citizen," against the right of the government to regulate fees by proclamation. About the same time, in a conversation with Judge Samuel Chase, the latter remarked, "Carroll, we have the better of our opponents—we have completely written them down." "And do you think," replied Carroll, "that writing will settle the question between us?" "To be sure," replied Chase; "what

else can we resort to?" "The bayonet," answered Carroll. Some years before the commencement of open hostilities, Mr. Graves, a member of parliament, wrote to Mr. Carroll on the subject of our troubles, ridiculed the idea of our resistance, and said that 6,000 English troops would march from one end of the continent to the other. "So they might," Mr. Carroll observed in his reply, "but they will be masters of the spot only on which they encamp. They will find naught but enemies before them. If we are beaten in the plains, we will retreat to the mountains and defy them. Our resources will increase with our difficulties." When tea was imported into Annapolis, great excitement was created, and Mr. Stewart, the owner, was threatened with violence. Some of his friends called on Mr. Carroll to protect him, or use his influence to do so. He said to them: "It will not do, gentlemen, to export the tea to Europe or the West Indies. Its exportation, contrary to the known regulations of the convention, is an offence for which the people will not be so easily satisfied, and whatever may be my personal esteem for Mr. Stewart, and my wish to prevent violence, it will not be in my power to protect him, unless he consents to pursue a more decisive course of conduct. My advice is, that he set fire to the vessel and burn her, together with the tea she contains, to the water's edge." Mr. Stewart then appeared and soon consented to the proposal, and a few hours afterward the brigantine Peggy, with sails set and colors flying, was given to the flames, to the entire satisfaction of the dense crowd collected. In 1775 Carroll was chosen a member of the first committee of observation that was established at Annapolis; and during the same year he was elected a delegate in the provincial convention. In February, 1776, he was appointed a commissioner with Dr. Franklin and Judge Chase, to proceed to Canada accompanied by the Rev. John Carroll, in order to induce the inhabitants of that country to unite with the colonies. He returned from Canada in June, 1776, and on the 12th presented their report. He found the declaration of independence under discussion, and the delegates of his own state, Maryland, shackled by instructions (given the December previous, and against which he had then contended), "to disavow in the most solemn manner all design in the colonies of independence." On his return he hastened to Annapolis, to resume his seat and procure, if possible, a withdrawal of these instructions. Together with Judge Chase, he labored so assiduously, that on June 28 the instructions were withdrawn and the delegates authorized to join in a declaration of independence. On July 4, 1776, he was appointed a delegate to Congress, and Aug. 2, when the declaration was first signed, he was one of the earliest signers. As he affixed his signature to that immortal compact, a member standing near, knowing his princely wealth, observed, "There go a few millions;" and adding, "However, there are many

Carrolls, and the British will not know which one it is," Mr. Carroll immediately added to his name, "of Carrollton," and was ever afterward known by that title. Mr. Carroll took his seat on July 18, and was soon afterward placed in the board of war. In the latter part of 1776, he was one of the committee to draft the constitution of Maryland, and in December of the same year he was chosen to the senate under the constitution of that state. In 1777 he was re-appointed a delegate to Congress. In 1781 and 1786 he was re-elected to the Maryland senate, and in 1788 a senator of the United States. In 1797 he was again elected to the senate of Maryland, and in 1799 he was appointed one of the commissioners to settle the boundary line between Virginia and Maryland. In 1810 Mr. Carroll retired from public life, and devoted his time to the management of his estate. A man of cultivated mind, captivating manners, liberal and philanthropic in all his views, and proverbially hospitable, his society was eagerly sought by those who resided near him, or in the neighboring city of Baltimore; while those who came from a distance with any proper introduction, met always the warmest welcome. On July 4, 1821, the fact that only 4 of the signers of the declaration of independence were still living, was noticed in many of the newspapers. Of these, William Floyd, of New York, died 80 days afterward. The demise of John Adams and Thomas Jefferson, on July 4, 1826, left Charles Carroll of Carrollton the last surviving signer. In the performance of their obsequies, funeral honors being paid them in Baltimore as in many other cities, Mr. Carroll was chief mourner. On July 4, 1828, after he had passed the patriarchal age of 90 years, in the presence of a vast concourse of spectators and attended by one of the most imposing civic processions ever seen in the United States, he laid the corner stone of the Baltimore and Ohio railroad. He was yet spared for several years longer, and died in the 96th year of his age.

CARROLL, JOHN, an eminent prelate of the Roman Catholic church, and the first archbishop of the U. S., born at Upper Marlborough, Md., in 1735, died Dec. 3, 1815, was educated in the college of St. Omer, and the college of Liège, where he was ordained a priest, and after surrendering his patrimonial estate to his brother, became a member of the society of Jesus. Upon the dissolution of that society in France in 1763, he acted as the secretary of the dispersed fathers, in their remonstrance with the court of France respecting the temporal interests of the order. He then went to England, and was selected by Lord Stourton, a Catholic nobleman, to accompany his son as his tutor in the tour of Europe. During this journey he wrote, for the use of his pupil, a concise history of England. On his return to the continent in 1778, he accepted for a short time a professorship at Bruges, and afterward retired to England,

living with the family of the earl of Arundel. On the breaking out of the troubles between the mother country and the American colonies, he resisted all the pressing solicitations of Lord Arundel and embarked for his native land. Shortly after his return, at the request of the American congress, he accompanied Dr. Franklin, his cousin, Charles Carroll of Carrollton, and the Hon. Samuel Chase, on a political mission to Canada, from which it was hoped that great benefits would ensue to the colonial cause. By a special resolution of congress Charles Carroll was desired "to prevail on Mr. John Carroll to accompany the committee to Canada, to assist them in such matters as they shall think useful." The object of this resolution, though not entered on the journals of Congress, is quite evident. In the debates on the Canada bill in 1774, we are informed that there were 150,000 Catholics, and only 860 Protestants, within the government of the Quebec province. In order to fully estimate the delicacy of Mr. Carroll's position, it should be remembered that when his services were requested by Congress, some hope still remained in the colonies of a final reconciliation with the king. On April 2, 1774, the commissioners left the city of New York in a sloop for Albany, but did not reach Montreal till the 29th. As is well known, the mission failed, and leaving Messrs. Chase and Carroll of Carrollton, Mr. John Carroll returned home with Dr. Franklin. The friendship formed between these 2 eminent men during this journey was of lasting character. After the establishment of peace, the Roman Catholic clergy of the United States petitioned the pope for the establishment of a hierarchy in this country, in preference to remaining under the superintendence of that in England, and it was at Dr. Franklin's instance, then residing at Passy, that Mr. Carroll was appointed vicar-general in 1786, when he fixed his abode in Baltimore. In 1789 he was appointed the first Catholic bishop of the U. S., and went to England to be consecrated. He assumed the title of bishop of Baltimore, and a few years before his death was created archbishop.

CARRON, a small river in Scotland, 14 m. long, rising between the friths of Forth and Clyde, and flowing into the frith of Forth, about 8 m. N. of Falkirk. About the middle of its course stand 2 earthen mounds of considerable height, called the hills of Dunipace. It has been supposed that they were made in commemoration of peace between the Romans and the Caledonians, their name coming from *dea*, a hill, and *paz*, peace. They may be merely barrows, however. Not far below them stands the old Roman bridge, supposed to be the scene of a conference between William Wallace and Robert Bruce. About  $\frac{1}{2}$  mile from the stream, near Falkirk, is the battle-ground where the English defeated Wallace in 1298. During the 5th century, many battles between the Romans and the Scots and Picts were fought near this river. The Carren was the boundary of

the Roman empire, the wall of Antoninus running close to and parallel with it for several miles. The village of Carron, on its banks, is known for its large iron foundry, established in 1760.

CARRON, GUY TOUSSAINT JULIEN, a French abbé, born at Rennes, Feb. 28, 1760, died March 18, 1831, in Paris. Having taken holy orders at an early age, he distinguished himself by his active philanthropy in establishing, in his native town, cotton factories, where he provided work for the poor. On the outbreak of the revolution he was transported to Jersey. There he established schools for young exiles from France, a Catholic chapel, and charitable institutions. In 1796, through the assistance of the government and several noblemen, he founded a college for his young countrymen, a female school, and 2 hospitals for emigrant invalids. In 1814 he returned to France as poor as he left it, and, with the patronage of Louis XVIII., founded the Marie Thérèse institute for the education of orphans. He wrote several books for the instruction of Christian youth.

CARRONADE, a short piece of iron ordnance, first constructed at the Carron foundry, Scotland, in 1779, for the use of the British navy, and first employed against the United States. The carronades have no trunnions, but a loop under the middle of the piece, by which they are fastened to the carriage. The bore has a chamber, and the muzzle is scooped out like a cup. They are very short and light, there being about 60 or 70 lbs. of the gun to 1 lb. of the weight of the solid shot, the length varying from 7 to 8 calibres. The charge, consequently, cannot but be weak, and ranges from  $\frac{1}{16}$  to  $\frac{1}{4}$  the weight of the shot.—Carronades, on their first introduction, found great favor with naval men. Their lightness and insignificant recoil allowed great numbers of them to be placed on board the small men-of-war of those times. Their ranges appeared proportionably great, which was caused: 1, by a reduced windage, and, 2, by their great angle of dispar, arising from the thickness of metal around the breech, and the shortness of the gun; and the great weight of metal projected by them rendered them at close quarters very formidable. They were adopted in the U. S. service about 1800. It was, however, soon discovered that this kind of cannon could not compete with longer and heavier guns, throwing their projectiles with full charge and at low elevations. Thus, it has been ascertained that the common long guns of the British service have at 2° elevation, and the shell guns at 8°, the same range as the carronades of corresponding calibre at 5° (viz., about 1,200 yards). And, as the chance of hitting decreases as the elevation increases, the use of carronades beyond 1,200 yards and an elevation of 5° is completely out of the question; whereas, long guns may with considerable effect be used at ranges up to a mile, and even 2,000 yards. This was strikingly exempli-

fied by the 2 contending squadrons on Lakes Erie and Ontario, during the Anglo-American war of 1812-'14. The American vessels had long guns, while the British were mainly armed with carronades. The Americans manœuvred so as to keep just out of range of the British carronades, while their own long guns told heavily on the hulls and rigging of their opponents. In consequence of these defects, carronades have now become almost obsolete. On shore they are used by the British, now and then, on the flanks of bastions and in casemates, where but a short extent of ditch is to be flanked by grape principally. The French navy possesses a carronade with trunnions (*carronade à tourillons*); but this is in reality a powerful gun.

CARROT (*daucus carota*, Tourn.), a member of the natural order *umbellifera*, or parsley family. It is a biennial, bearing seeds on stems 2 to 2½ feet high, in clusters called umbels. It may be seen growing in its wild state in pastures, where it is a great pest. The taproot of the domesticated carrot is raised from seeds sown in cultivated ground, and has long been used in soups and stews, and is a favorite in Germany and France. It is a promoter of good digestion, and is especially valued as a substantial food for horses and other stock. Butter of an excellent quality and bright color can be made by feeding a peck of carrots morning and night to each milch cow. They can be grown at the rate of 500 to 1,500 bushels per acre, and properly managed at a cost of 15 to 20 cents per bushel. In England they are rated at 10 to 28 tons, worth £1 sterling per ton at least. In our markets they bring \$1 to \$1.50 per barrel of 2½ bushels; in bulk for feeding, about 40 to 50 cents per bushel. Soil not capable of producing 500 bushels per acre should never be used for carrots. The best soil is a deep dry loam, rich from previous manuring. The carrot germinates slowly, requiring about 8 weeks before it appears above ground. This slow growth allows the weeds time to start, and makes culture more expensive. To avoid this difficulty, it has been the practice with many to drill radishes, mustard, or oats with them, to mark the row at an early period so as to allow the spaces between the rows to be cleaned, even before the plants are up. Some growers place the seed in a bag, bury it in the earth until it begins to swell and show signs of sprouting, when it is rolled in plaster and planted. The amount of seed required is 2½ to 4 lbs. per acre, depending on nearness of drills; if radishes are sown with them, an equal bulk will be required. Early carrots for house use are sown as soon as the soil is fit to receive the seed; "early horn" is the best variety. Field carrots do better, sown from May 10 to June 10. The large Altringham, white Belgian, and long Orange, are the choicest varieties. The latter does not yield as much as the others, but is of finer quality. The white Belgian carrot gives the least trouble in field culture. In England, carrots are

best grown on ridges, but in our warm climate flat culture is to be preferred. In gardens they are sown in drills 15 to 20 inches asunder, and cultivated by hand. In the field they are planted from 24 to 30 inches apart, grown more thickly in the drill, and tilled by horse power. The land is deeply ploughed, subsoiled, smoothly harrowed and rolled. The seed is sown from a drill barrow at a depth of  $\frac{1}{4}$  to  $\frac{1}{2}$  of an inch. Some drilling machines sow a special manure with the seed, which is advantageous in giving the plants an early start. Should any manure be required, it would be advisable to use soluble special manures, made with regard to the wants of the plant and the deficiencies of the soil. The best Peruvian guano, mixed with many times its bulk of muck or charcoal dust, will answer a good purpose, if ploughed in the soil before planting; 800 lbs. to 500 lbs. per acre will be required for a good dressing. Soluble superphosphate of lime, with about  $\frac{1}{2}$  its weight of guano, probably forms one of the best general manures for carrots. Ten bushels of common salt per acre will add to its value; and on most soils 25 or 50 bushels of unleached wood ashes dressed over the surface separately from and after the other manures, so that they will not come in immediate contact with the ashes, will increase the yield. After-culture consists in frequent stirring of the soil with Knox's horse-hoe or root-cleaner, or other similar instrument, which cuts close to the plant, and demolishes all weeds in spaces between the rows. In November the crop is lifted, by running a subsoil lifter close to a row of carrots at full depth, say 10 to 20 inches; this will loosen the whole soil, and the roots may be readily pulled, the tops removed with a knife, fed to the cattle, or left on the ground to be ploughed under for manure, while the roots are stored in a cool cellar, where an even temperature just above freezing is maintained; or they may be pitted in long narrow piles in the field, covered with 2 or 3 inches of long rye straw and several inches in depth of earth, leaving straw chimneys to ventilate the pits. When fed to cattle, they should be washed in clean water, and cut in thin slices, and given alone or with other food. The meal for fattening cattle should be sprinkled over carrots, if rapid improvement is desired.

**CARROUSEL**, a chariot race, or a magnificent entertainment given by princes or other great personages, who appeared clothed and armed in the manner of ancient cavaliers. Tertullian ascribes their invention to the goddess Circe, and says that they were instituted in honor of the sun, and consisted at first only of chariot races; whence the name has been derived from the Latin *carrus solis*, the chariot of the sun. Carrousels were common among the Goths, Moors, and Italians, and were introduced into France under Henry IV. They succeeded the jousts and tournaments, in one of which Henry II. had lost his life, but since the time of Louis XIV. have passed out of fashion.

The place appointed for the carrousels was surrounded with an amphitheatre for the ladies and principal spectators, and some event in fable or history was selected for allegorical representation. The carrousels given at Paris in the court of the Louvre in 1606, represented the 4 elements, fire, air, earth, and water, and the cavaliers were attired in the characters of naiads, fauns, Mercury, Neptune, Orpheus, &c. Under Louis XIV. a carrousel was celebrated in the Tuileries, in which 4 nations were represented. The king himself took command of the Romans and the Persians, Turks, and Muscovites were commanded by the noblest lords. Squads were formed, and various exercises and combats succeeded. The combatants sometimes broke lances with each other, but more frequently against a wooden figure.

**CARSON, CHRISTOPHER**, popularly known as **KIT CARSON**, an American mountaineer, trapper, and guide, born in Madison co., Ky., Dec. 24, 1809. While yet an infant his family emigrated to what is now Howard co., Mo. At 15 years of age he was apprenticed to a saddler, with whom he continued 2 years, when he joined a hunting expedition. The next 8 years of his life were passed as a trapper, which pursuit he relinquished on receiving the appointment of hunter to Bent's fort, where he continued for 8 years more. At the expiration of this time, he made a short visit to his family, and on his return chanced to meet Col., then Lieut. Fremont, by whom he was engaged as guide in his subsequent explorations. In 1847 Carson was sent to Washington as bearer of despatches, and received an appointment as lieutenant in the rifle corps of the U. S. army. In 1858 he drove 6,500 sheep to California, a difficult but successful undertaking, and on his return to Taos was appointed Indian agent in New Mexico.

**CARSTAIRS, WILLIAM**, a Scottish divine, born in 1649, died in 1715. He was educated at Edinburgh and Utrecht, and devoted himself warmly to the prince of Orange. He was minister of an English church at Leyden; but returning home, he took offence at the conduct of the Episcopal party, through whose influence he was arrested, after which he retired again to Holland. He was brought back on a charge of having been accessory to the Rye House plot, and put to the torture. He was dismissed, with the king's pardon, and again went to Holland, where he rose still higher in favor with the prince. He contributed much, as King William's chaplain, to the establishment of the Presbyterian government in Scotland. During the reign of Anne he still retained his chaplaincy. In 1704 he became professor of divinity at Edinburgh, and was 4 times moderator of the general assembly.

**CARSTENS, ASMUS JAKOB**, a German painter, born at St. Jürgeu, near Schleswig, May 10, 1754, died May 26, 1798. He was a miller's son, but received a superior education from his mother. He had a youthful passion

for painting, but after his mother's death was placed in a mercantile house. After quitting his master, he went to Copenhagen, where he struggled on for 7 years, supporting himself by portrait-painting, at the same time working at a large historical picture on the "Death of *Æschylus*." He went to Italy after finishing this work, then lived at Lübeck for 5 years, toiling on in obscurity, when he was introduced by the poet Overbeck to a wealthy patron, by whose aid he went to Berlin, where the merit of his "Fall of the Angels," a colossal picture, containing over 200 figures, gained him a professorship in the academy of fine arts. Two years' labor in Berlin enabled him to accomplish his cherished wish to go to Rome, and study the works of Michel Angelo and Raphael. His best works were designs in aquarella, and painting in fresco; he rarely painted in oil. His cartoons at Weimar have been engraved by Müller. Homer, Pindar, Aristophanes, and Dante supplied him with his best subjects; and among the painters who endeavored to infuse a classic spirit into the fine arts of the 18th century, he holds a prominent position.

CARTAGO, a town of Costa Rica, Central America, stands on the river of the same name and on the base of the volcano of Cartago. It was formerly the capital of Costa Rica and a place of commercial importance, but in both respects it has given way to the present capital, San José. In 1841 it was almost entirely ruined by an earthquake, which destroyed nearly 8,000 houses and 7 out of the 8 churches. The population, once very numerous, is supposed to have dwindled down to 5,000, and by some authorities even to 3,000.

CARTAGO, a town, pop. 5,500, on the Vieja, in the state of Cauca, New Granada. It has broad straight streets, a spacious square, a cathedral, 2 parish churches, and a good school. The climate is dry and healthy, but very hot. The sugar-cane is cultivated with advantage in the vicinity; the surrounding hills contain nitre, and minerals of various kinds are found in abundance. Cattle, live pigs, fruits, coffee, cocoa, and tobacco are the principal articles of trade.

CARTE, THOMAS, an English scholar, born near Clifton, Warwickshire, April, 1686, died near Abingdon, Berkshire, April 1, 1754.—He studied at Oxford and Cambridge, received holy orders, and was appointed reader of the Abbey church at Bath. A sermon which he preached in Jan. 1714, in which he endeavored to vindicate Charles I. with regard to the Irish rebellion, engaged him in a controversy with Dr. Chandler and led to his first publication, entitled "The Irish Massacre set in a Clear Light." On the accession of George I. he declined taking the oaths of allegiance, and therefore relinquished his ecclesiastical office. In 1715 he was suspected of being implicated in the rebellion, and was obliged to conceal himself in the house of the Rev. Mr. Badger at Coleshill. Having officiated as curate in that town for a short time, he became secretary to the famous Bishop Atter-

bury. In 1722 he was again strongly suspected of being concerned in the bishop's conspiracy. A reward of £1,000 was offered for his apprehension, but he escaped into France and remained there for a number of years under the assumed name of Phillips, until Queen Caroline obtained permission for him to return to England. In 1744 he again gave umbrage to the government, and was arrested in consequence of some apprehensions from the pretender, but soon discharged.—His principal works consist of the chief materials for an English edition of De Thou and Rigault, in 7 vols.; a "Life of James, Duke of Ormond," and a "History of England." The latter was published by subscription. A note in the 1st volume stating that some person had been healed of the king's evil by the touch of the pretender impaired the popularity of the work. Mr. Carte, however, prosecuted his undertaking with undiminished zeal, but did not live to complete the 4th volume, which appeared in 1756. It was to have been carried down to the restoration, but does not go beyond the year 1654.

CARTE-BLANCHE (Fr. white card), a blank paper with a signature, and sometimes a seal; at the bottom, intrusted to a person to be filled up at his discretion. The term is generally used in the sense of unconditional power given to a person to act as he judges best.

CARTEL, a writing or agreement between hostile powers for some mutual advantage, such as the exchange of prisoners. In France and Italy it also means a challenge or letter of defiance, but in England and America this sense is obsolete.—A cartel ship is a vessel used in exchanging prisoners or carrying proposals to an enemy.

CARTER. I. A N. E. co. of Tenn., bordering on N. O.; area estimated at 850 sq. m.; pop. in 1850, 6,296, of whom 358 were slaves. It occupies some of the highest ground in the state. A range called Iron mountain, covered with timber and rich in mines of iron, extends along its south-eastern border. Watanga river and other streams supply the county with excellent water-power, which is extensively employed in iron works. The valleys are highly productive, and the harvest in 1850 amounted to 178,541 bushels of Indian corn, 94,851 of oats, 19,307 of wheat, and 76,656 lbs. of butter. Capital, Elizabethtown. II. A N. E. co. of Ky.; area about 550 sq. m.; pop. in 1850, 8,241, of whom 257 were slaves, separated from Virginia on the E. by Big Sandy river. The surface is hilly and broken. The soil near the rivers is tolerably fertile, but in other places unfit for cultivation. The mineral wealth of the county, however, is considerable, iron ore and stone coal being found among the hills in great quantities. The agricultural productions in 1850 were 279,777 bushels of Indian corn, 86,409 of oats, and 15,674 lbs. of wool. There were 4 churches, and 696 pupils attending public schools. There are salt springs of some value near Sandy river, and the grazing lands main-



tain numbers of cattle. Organized in 1888, and named in honor of William G. Carter, a member of the state senate. Capital, Grayson.

CARTER, ELIZABETH, an English authoress, born at Deal, in Kent, Dec. 16, 1717, died in London, Feb. 19, 1806. She translated Epictetus, and also wrote some poems, and numbers 44 and 100 of the "Rambler." Her poetic works exhibit much tenderness, simplicity of sentiment, and expressive sweetness. She was never married.

CARTER, JAMES GORDON, an American educationist, born at Leominster, Mass., Sept. 7, 1795, died at Chicago, Ill., July 22, 1849. Having by his own exertions fitted himself for college, he entered at Harvard in 1816, in the same class with the celebrated mathematical writer Warren Colburn; it was during their college course that Colburn projected the little work which has attained such an important position in American education, the "First Lessons in Arithmetic," and its leading features were all discussed with Carter and arranged before they graduated. Mr. Carter took his degree in 1820, and immediately devoted his attention to teaching at Lancaster, Mass., in which employment he continued except for a short interval until 1880. In 1823 he contributed to the "Boston Patriot" a series of essays on education, which were subsequently published in a collected form, under the title of "Carter's Essays on Popular Education." In 1824 he followed these by "Letters to the Hon. William Prescott, LL.D., on the Free Schools of New England, with Remarks on the Principles of Instruction." In the essays, he first developed the idea of a seminary for teachers, or, as it is now generally called, a normal school. There is no reason to believe that Mr. Carter knew of the existence of such schools in Prussia, though, in fact, they had existed there for some years. In 1824 he went to Boston and took charge of the "U.S. Review," which had at that time been united with the "Literary Gazette." In 1827 he presented a memorial to the legislature of Massachusetts, praying for aid in the establishment of a seminary for teachers with a model school attached. The proposition was not adopted, but the town of Lancaster appropriated a portion of land and the use of an academy building to the purpose, and Mr. C. purchased several dwelling-houses for the accommodation of his teachers and pupils, procured assistants, and opened his school. In a few months he was compelled to relinquish his project as a public enterprise, and confine himself to the reception of pupils into his own house, many of whom afterward became successful teachers in Massachusetts and elsewhere. In 1830 he assisted in the organization of the American institute of instruction, of which he was for many years an active member and officer. His lectures before that body in 1830 and 1831 are among the most valuable contributions to its transactions. From 1835 to 1840 he was a member of the legislature, 3 years in the house and 2 in the senate. As chairman of the

committee on education he originated several important measures. Among these was one granting aid to the American institute of instruction; another "providing for the better instruction of youth employed in manufacturing establishments," a measure of great wisdom and foresight; a bill for the appointment of a superintendent of common schools, and another for the establishment of a seminary for the professional education of teachers. In 1837 he made an unsuccessful effort to secure the appropriation of one-half the U. S. surplus revenue falling to the state for the maintenance of seminaries for the education of teachers, but later in the same session a bill drafted by him, establishing the board of education, passed both houses. Gov. Everett appointed Mr. Carter the first member of the board.

CARTER, NATHANIEL H., an American author, born at Concord, N. H., Sept. 17, 1787, died in Marseilles, Jan. 2, 1880. He was educated at Exeter academy and Dartmouth college, and in 1811, after graduating, became a teacher at Salisbury, N. H., and subsequently at Portland, Me. In 1817 he was elected professor of languages in the university created at Dartmouth by the state legislature. This institution was soon broken up by a decision of the supreme court, when he removed to New York, and became editor of the "Statesman," a political newspaper of that city. In 1825 he was engaged by a gentleman of New York to accompany his son on a visit to Europe. He wrote home letters descriptive of his travels to the "Statesman," which on his return were collected and published in 2 vols. 8vo. He passed the winter of 1828 in Cuba; the next year he undertook a voyage to Marseilles, and died soon after his arrival.

CARTERET, a county of North Carolina, bordering on the Atlantic and Pamlico sound; area, 450 sq. m.; pop. in 1850, 6,803, of whom 1,487 were slaves. Several long, narrow islands, one of which is Cape Lookout, partially separate it from the sea, and Newport river flows through it. The surface is level, and much of it is occupied by swamps and pine forests. In 1850 this county produced 40,225 bush. of Indian corn, 54,760 of sweet potatoes, 272½ tons of hay, 75 bs. of flax, 3,940 lbs. of rice, 8,346 lbs. of wool, 759 lbs. of beeswax and honey. There were 4 sawmills, 12 tar and turpentine manufactories, and the capital invested in manufactures was \$44,400. The number of churches was 7. The county was formed in 1729, and named in honor of Sir George Carteret, one of the proprietors of the land. Capital, Beaufort.

CARTERET, PHILIP, an English navigator, was in the expedition commanded by Wallis, in 1766, on a voyage of discovery to the South seas. He discovered Queen Charlotte's isles, and other isles, 2 of which he called Gower and Carteret. A description of his voyage was given by Dr. Hawkesworth in the introduction to his narrative of Capt. Cook's first voyage.

CARTES, Dns. See DESCARTES.

**CARTESIANS**, the name given to those philosophers who adhere to the system of Descartes.

**CARTHAGE**, the *Carthago* of the Romans, *Καρθηδών* of the Greeks; *Carthada* in the Punic tongue, signifying "new city," in contradistinction to the old or parent city of Tyre, founded according to the legend by Dido, a Phœnician princess, 878 B. C. Of the early history, first settlement, and chronology of Carthage, beyond the fact that the original colonists were Phœnicians from Tyre, comparatively speaking, nothing is known. To judge by analogy, Carthage was a considerably older, as she was at a very remote period a far more important, city than Rome. It is said by Herodotus that Hamilcar, king or chief magistrate of Carthage, a Carthaginian by his father's, but a Syracusan by his mother's blood, according to an agreement with Xerxes, attacked Galon and Theron, the Greek leaders in Sicily at the head of an army consisting of 80 myriads, or 800,000, of Africans, Iberians, Ligurians, Heliæcians, Sardinians, and Corsicans, on the day of the battle of Salamis, 480 B. C. Now Herodotus was 4 years of age at the time when the battle was delivered; and, as the Carthaginians were constantly on the stage during his whole lifetime, it is most unlikely that he should have described them as bringing forces into the field which they could not have brought. At this period, then, Carthage was supposed, by a contemporary writer, to be capable of transporting an army of 800,000 men to the island of Sicily, where she notoriously had colonies and carried on wars, at a time when Rome was engaged in a struggle for existence against Veii, a city within 12 m. distance of her capitol; when she had not a territory of 80 m. in circumference, which she could call her own; not a war ship afloat, for above 2 centuries afterward; not a name that had been entitled to any consideration, nor a vestige of political importance, beyond the regions lying immediately about the Tiber. That Carthage then had ships and commerce is evident, from the existence of a commercial treaty, bearing date of the year of the 1st consul, preserved by Polybius, which is one of the most interesting, as it is of the most ancient, documents of that character on record. By this treaty, which Polybius (iii. 22, 26) translated from the original brazen tables then existing in the capitol, among the archives of the sedites, the language being so obsolete that, in some parts, even the more learned among the Romans could only guess at the meaning, it was stipulated that the Carthaginians shall make no conquests and build no forts on the Latin coast, even on those parts of it which are free; that the Romans may trade freely with Carthage herself, and the Libyan coast, westward of the Hermæan or Beautiful promontory, now Cape Bon, and with the island of Sardinia, and that on terms of particular commercial advantage. With Sicily and the independent Phœnician allied colonies Carthage

obtains for the Romans all the privileges which she herself possesses, and, in return, the Romans are prohibited from entering any port on the African coast, E. of the said promontory, which forms the eastern boundary of the gulf of Carthage; the object of which prohibition seems to have been to exclude them from the rich country on the shores of the lesser Syrtia, and to preclude them from the direct enjoyment of the lucrative trade with Egypt, of which Carthage chose to retain the monopoly.—Of Carthage, from herself, less is known than of any other nation of antiquity. She has left no literature, no monuments, no traces of her people or her language, with the exception of a few inscriptions on coins, and a few verses in one of the comedies of Plautus. Even among the writers of the nations with whom she carried on commercial business, and with whom she waged wars, the notices of her polity, of her population, of her religion, her manners, or her language, are few and far between. Although the waters of every sea were white with her sails, the shores of every land, hospitable or inhospitable, civilized or savage, were planted with her colonies or frequented by her mariners, no relic of her laws, her language, or her blood appears to linger upon earth. Were it not for the wars which terminated her existence not merely as a nation, but as an existing race or people, we should scarcely be aware of the existence of a city, the inhabitants of which had visited the Western isles, the Canaries and the Cape de Verdes; had braved, if they had not crossed, the waters of the terrible Atlantic; and had excavated the rocks of Cornwall with their prodigious tin mines. Even of the Carthaginians in their wars, we know less as a people than of any other which effected such wonders, and fill such a space in history by their arms. It is, in a word, by the names and the deeds of her generals, several of whom were among the greatest of antiquity, not by the constitution, the composition, or the character of her armies, that we know her. Through Aristotle and Polybius, we have learned a little of her political system and her government, a little of her religion. Of her civic customs, her social habits, her domestic institutions, her amusements, her industry, with the exception of some few hints in relation to her navigation, her commerce, and her agriculture, we are totally ignorant; posterity has preserved no record. Whether she had a literature, we know not; whether, even, her own citizens served at all as private soldiers in her armies, as private mariners in her fleets, is little certain. No writer, ancient or modern, has so concisely and ably brought together what is known of the great commercial republic of antiquity, as Dr. Arnold, in his "History of Rome," and from the fruit of his researches most of what follows is selected. "In the middle," he says, "of the 4th century B. C., the Carthaginians possessed the northern coast of Africa, from the middle of the greater Syr-

tis to the pillars of Hercules, a country reaching from long. 19° E. to 6° W., and a length of coast which Polybius reckoned at above 16,000 stadia. But, unlike the compactness and organization of the provinces of the Roman empire, this long line of coast was, for the most part, only so far under the dominion of the Carthaginians, that they possessed a chain of commercial establishments along its whole extent, and, with the usual ascendancy of civilized men over barbarians, had obliged the native inhabitants of the country, whether cultivators of the soil or wandering tribes, to acknowledge their superiority. But in that part where the coast runs nearly N. and S. from the Hermæan headland or Cape Bon, to the lesser Syrtis, they had occupied the country more completely. This was one of the richest tracts to be found; and here the Carthaginians had planted their towns thickly, and had covered the open country with their farms and villas. This was their *periokis*, the immediate domain of Carthage, where fresh settlements were continually made as a provision for the poorer citizens; settlements prosperous, indeed, and wealthy, but politically dependent, as was always the case in the ancient world; inasmuch that the term *periokoi*, which in its origin expressed no more than 'men who dwell not in, but round about a city,' came to signify a particular political relation, theirs, namely, who enjoyed personal freedom, but had no share in the government of their country. Distinct from these settlements of the Carthaginians themselves were the sister cities of Carthage, founded immediately, like herself, by the Phœnicians of Tyre and Sidon, although her fortunes had afterward so outgrown theirs. Among these Phœnician colonies were Utica, more famous in Roman than in Carthaginian history; Adrumetum; the 2 cities known by the name of Leptis, situated the one near the western extremity of the great Syrtis, and the other on the coast, between the lesser Syrtis and the Hermæan headland; and Hippo, a name so closely connected in our minds with the piety and energy of its great bishop, Augustine. These were the allies of Carthage, and some of them were again at the head of a small confederacy of states, who looked up to them for protection, as they in their turn looked up to Carthage. They enjoyed their own laws, and were independent in their domestic government; but in their foreign relations they found, in common with all the weaker states of the ancient world, that alliance with a greater power ended sooner or later in subjection."—In the beginning the Phœnician settlers of Africa occupied their forts and domains by sufferance, and paid tribute to the natives, as an admission that they did not own the soil. Subsequently, like the Europeans in India, the settlers became sovereigns. The natives were driven back from the coasts and confined to the interior. They became mere tillers of the soil, but whether as owners, or merely as tenants, occupants, and cultivators of the land,

cannot now be ascertained; but it is clear that they were reduced to a condition similar to that of Roman provinces, subject to a despotic rule, to severe taxation—it amounted to 50 per cent. on the produce of the soil during the first Punic war—and to conscription for service in the Carthaginian armies. Another point of similarity between the condition of the domain of Carthage in Africa, and that of the Anglo-Indian empire, was the numerous race of half-castes sprung from the intermarriage of the settlers with the native women, known as Liby-Phœnicians, or Afro-Phœnicians. It cannot be determined whether these half-castes were to Carthage an element of power or of discord and weakness. It seems, however, that it was a usual practice of the mother city to send out colonies of these half-breeds to the Atlantic coasts of Africa, and probably of Spain also, beyond the pillars of Hercules. It appears, indeed, if the Greek version of the *Periplus* of Hanno may be trusted, that the circumnavigatory voyage so named was undertaken mainly for the settling of 80,000 of these Afro-Phœnicians on the African coast S. of the straits of Gibraltar. So early as the 7th century B. C., the trade of Carthage began with the Spanish seaports, especially with Tartessus or Tarshish, situated on an island lying between the 3 months of the Guadalquivir, one of which is now dry, a few leagues to the northward of Cadiz. And in the middle of the 4th century of Rome, corresponding to the beginning of the 4th B. C., the whole coast of Spain, both Atlantic and Mediterranean, was full of Carthaginian trading ports and settlements, but they were mostly of small size, and little if any political importance. Sardinia and Corsica were both, likewise, absolutely subject to Carthage, while on the shores of Sicily she had also strong fortresses, trading posts, seaports, and dockyards for the use of their military marine. And from the natives of all these countries, as well as mercenaries from Gaul, Liguria, and the coasts of the Adriatic, were recruited the large and effective armies by which the Carthaginians maintained the quiet of their provinces, and at the same time pushed their foreign conquests, though at times the safety and even the existence of the state was threatened and endangered by the revolt of these terrible and highly disciplined *condottieri*.—The political constitution of Carthage is said to have resembled that of Sparta, in that it combined the elements of monarchy, of aristocracy, and of democracy. But it is difficult to ascertain exactly how they were combined, or which predominated, during the greater period of her existence. During her struggle with Rome, the aristocratic element prevailed, and it appears to have been an aristocracy of the very worst sort, an aristocracy namely in great part of commercial wealth, not of birth; although there was, to a certain extent, a hereditary nobility which furnished the 2 chief magistrates, who are variously called kings and suffetes, who formed origi-

nally the supreme and nearly despotical executive, as well as being leaders in war, but were reduced by successive usurpations of the nobility to functions and powers not differing essentially from those of the doges of Venice. Then there was a general assembly, which was as numerous, probably, as the Roman senate, and represented the aristocracy in general, from which great assembly was selected a council of 100 life members, who were chosen, not by the assembly itself, but by committees of 5, which were close corporations, filling up their own vacancies, the members of which were also all members both of the council of 100 and of the great assembly. It appears, further, that the multiplication of offices in the same hands was a part of the system at Carthage, as it was at Venice, and that the *suffetes*—a term identical with the Hebrew word which is rendered 'judges' in the Scriptures—as well as the other principal magistrates, bought their dignities, whether by the purchase of votes or by the payment of entrance fees it is not stated, in such a manner that high office was inaccessible except to the rich alone. So long as the *suffetes* and the council were agreed, it seems that the power of the commons was exceedingly small; they had neither originating powers nor judicial functions; yet, as ample provision was made for the poorer classes, and as the surplus population was always disposed of, profitably and advantageously to themselves, by a system of colonization at the government expense, the lower orders remained for many centuries perfectly satisfied and contented with the constitution of their country, until a very late period of history, when the progress of her democracy, which was indisputably on the increase, was brought to a sudden close by the destruction of the city of Carthage, and the extirpation of the Carthaginian people. It is said by Polybius, that, during her wars with Rome, the constitution of the city became more and more democratic, and he ascribes the ultimate victory of Rome, in some measure, to their stable and conservative aristocratic government.—"The language of Phœnicia," says Dr. Arnold, "was a cognate tongue with the Hebrew; if it were not, as is held by Gesenius and others of the best authorities, identical with the earliest Hebrew of the Old Testament, and varying from it no more than does the dialect of the later Hebrew writers. It is evident, however, from the fact that the Carthaginian tongue seems to have been nowhere studied by the inhabitants of the nations with whom they had treaties and constant commercial intercourse, even among the most learned men and the most distinguished scholars, that it could have contained little or nothing worthy of preservation. Had there been more either of wisdom or of art embodied in whatever works they had, we should have had more translations, known to us at least by report, than those of Mago's book on agriculture, and of a few circumnavigations and mari-

time explorations. Of their architecture, their arts, we have neither a relic nor a record. Of their religion we know from Scripture and from more recent history, that it was a cruel and bloody superstition. They worshipped on high places, and they had sacred groves, as well as idols, which were held in particular abomination by the true followers and subjects of the Jewish theocracy, and which were yet constantly owned as gods, frequented and worshipped by the backsliders, both of the princes and of the people of Israel; a singular proof, if proof were needed, of the close connection, both in race and language, as well as in social habits and modes of thought, between the children of Israel and the Phœnicians, whether of Syria or of Africa, who called themselves *Kanaanim*, which we render Canaanites, so late as to the time of St. Augustine, and so far from the place where the name first obtained as Hippo Regius, to the westward of the site of Carthage. Their principal god was Baal, Belsamen, or the ancient one, Moloch, as he was called by the Jewish rabbinical writers, who was considered by the Greeks as identical with *Kronos* or Saturn, and who, in process of time, became in some features assimilated to Apollo. He was evidently the fire-god or sun-god, and to him were offered the human sacrifices, of children more especially, who were placed on the extended palms of the metallic statue, whence they rolled into a fiery furnace. To the sun-god was associated a female deity, expressive, it is believed, of the productive power of nature under the generative power of the sun, worshipped as the queen of heaven, Ashtoreth or Astarte, who is identical with the Venus Mylitta of Babylon, the Avaitis of Armenia, and the Venus Urania of Cyprus, of whose rites the sexual lusts were as distinct a feature, as was the fiery death the head and front of those of the male deity. In Africa the worship of Ammon seems to have been associated with that of Baal, and of the sacred elephant; while that of Melkarth, the Punio Hercules, was celebrated by the lighting of yearly funeral pyres, and the release of an eagle, typical of the sun, and of the legendary phoenix renewing himself from his own ashes. The offering of human sacrifices extended so far to the westward as to Cadiz, where there existed a temple and statue of Baal-Saturn, under the Roman dominion; and continued so late as to the times of the Roman emperors, more than one of whom published edicts in vain, prohibitory of these barbarous immolations."—The first period of the history of Carthage extends to the beginning of the war with Syracuse, from the commencement of the city, whenever that occurred, nominally B. C. 878 to 480; during which time she had conquered her African empire, Sardinia and the adjacent isles; waged wars with Massilia and the Etrurians, on commercial grounds; prosecuted her voyages of discovery, traffic, and colonization along the coasts of Spain, far out into the Atlantic; established trading intercourse with the Scilly isles and

parts of the British coast; and, as some believe, pushed her adventures so far as to the inhospitable shores of the Baltic, where she is reported to have collected amber at the mouth of the river Rhodam. Of this period we know nothing from records, either of her own or her contemporaries, and can judge only by her condition, the state of her trade and resources, and the extent of her dominions at the time when we first have any authentic information of her greatness, which is to be found in the commercial treaty with Rome alluded to above, passed in the year 509 B. C. Thirty years after this date commences the 2d, and by far the most splendid period of Carthaginian history. It opens with their efforts to conquer and attach to their empire the great, rich, and fertile island of Sicily, and closes 265 B. C., with the outbreaking of the first Punic war. The Syracusan war was waged long and with various success. In the simultaneous attempt of the Persians on the Hellenic, and the Carthaginians on the Sicilian Greeks, the latter were defeated at Himera, by Gelon, tyrant or king of Syracuse, with nearly as much loss as was their ally, Xerxes, at Salamis. As a condition of peace they were compelled to renounce human sacrifices in their Sicilian trading posts and settlements. In the war with Hiero, Gelon's successor, they conquered and held in occupation the cities of Himera, Selinus, and Agrigentum. With Dionysius they were for a short time at peace, and then employed themselves in consolidating their former conquests on the island, which were now very rich and strong, consisting of well-fortified seaports, fortresses, dockyards, naval stations, and garrisons, backed by considerable territorial domains of great productiveness and wealth. After the reestablishment of republicanism in the Greek cities by Timoleon, the Carthaginians were almost invariably unfortunate; but, during the tyranny of that singularly able adventurer, Agathocles, the war was pressed with so much vigor by them, on his attempting, after the policy of Dionysius, to drive them out of the island, that he was defeated, reduced to all but extremity, and besieged in his capital of Syracuse, when, by a masterly stroke, which doubtless suggested the similar enterprise of Scipio, he broke out of the beleaguered city with a portion of his army, and carried the war into Africa. There he overran the open country, took 200 towns—for Carthage had no fortified places to delay an invading army, and no native peasantry or agricultural citizens of whom she could make a levy *en masse*, with which to protect her soil—and, although he was twice personally called back to Sicily to quell mutinies and restore order in his home dominions, actually maintained himself 4 entire years on African soil, at the gates of Carthage, which he reduced to at least equal distress with that of Rome during the similar, but far more brilliant invasion of Hannibal. At length his fortune turned, his armies in Africa were obliged to surrender, and in the year 306 B. C. he concluded a peace which re-

stored order to Sicily, and established both parties in possession of the territories each held before the breaking out of the war. After his death, the Carthaginians increased their possessions and power in Sicily, and established themselves as actual masters and sovereigns of the Balearic isles, Corsica, Sardinia, and the Liparian islands, thus girding the whole Roman seaboard with a belt of insular fortresses. Thus far, however, all was peace and amity between the two great republics of antiquity. In fact, immediately after the battle of Asculum, when Rome was in considerable straits, owing to the prolonged occupation of Italy by Pyrrhus, king of Epirus, and to his continual successes, a Carthaginian fleet of 120 ships of war appeared off Ostia, and offered assistance against the Greek, who was in some sort regarded as a common enemy of both republics; and although the offer was declined, the commander acted in good faith toward the Romans, assisting them in their siege of Rhegium, and in other enterprises, the end of which was to prevent the Sicilian Greeks from lending their aid to the king of Epirus and his allies, the Greek states of Italy. The retreat of Pyrrhus, in the year 275 B. C., left the Romans almost undisputed masters of Italy, and the course of the next 10 years rendered them absolutely so. In the mean time, Carthage had become yet more influential in Sicily, and was bent on converting influence and ascendancy into empire and possession. The little strait of Messina now alone divided the possessions and separated the armed forces of the two powerful, ambitious, encroaching, and already, it is probable, half-jealous states. Each, it is clear, already aimed at supremacy in Europe. Greece was already falling, if she had not fallen, into decrepitude, and could no longer pretend, through want of concert and united action, to any considerable power beyond her own limits. The Greek Egyptian empire of the Ptolemies, which was entirely isolated from the mother country, and which had long known Carthage by means of her commercial energy, on the tidings of the victory of Rome over the Greek arms of Pyrrhus, thought it advisable to seek intercourse and alliance with the strong young republic of the west. In a word, Rome had made herself known and respected beyond her own shores, and the contest between her and Carthage was inevitable. It arose, as might have been expected, with the invocation of Roman aid by the Mamertines, belonging to an Italian city of Sicily, against the Carthaginians; which being gladly rendered, as by a people seeking pretext of war, gave birth to the first Punic war, which broke out 265 B. C., and may be regarded as the commencement of the third period of Carthaginian history. This war lasted for more than 22 years. It was waged (with the exception of one invasion, by Marcus Regulus, of Carthaginian territory, which, in the outset successful, terminated in disaster, defeat, and the capture of the Roman general) either on the island of Sicily or on the waters

of the Mediterranean. On the latter, at first, the Romans suffered bloody defeats and maritime disasters, and reverses, in a word, sufficient to daunt the hardiest and most persevering of mankind. Still they persevered, and although, when the war broke out, they had not a single ship of war, a single mariner, or an officer who had seen sea service, in the end obtained the mastery of the Mediterranean, crushed the last fleet which the Carthaginians could raise, in a terrible conflict off the island of Favignana, at the W. angle of Sicily, and granted the peace which their enemy sued for, on condition that the Carthaginians should evacuate Sicily and all the isles thence to the Italian coast, release all Roman prisoners without exchange or ransom, and pay the expenses of the war, at the price of 3,200 Euboic talents, or \$3,887,888, within the space of the 10 years next ensuing. The victory was decisive, but the efforts it had cost Rome were prodigious. The census of the Roman citizens, in those 22 years, had sunk from 297,797, to 251,222 men capable of bearing arms, while the decrease among the Latin and Italian allies must have been at least equally great; and such was the exhaustion of silver and the depreciation of brass, that the Roman *as* of copper, from a full pound weight at the beginning of the war, was reduced to 2 ounces before the end of it. Twenty-two years of peace elapsed before the commencement of the 2d Punic war; and during the interval, although they had lost Sardinia, of which the Romans, by no means to their credit, made themselves masters, taking advantage of a mutiny of the Carthaginian mercenaries, Carthage had more than repaired all her losses, by the conquest and colonization of the vast and rich Spanish peninsula, with its virgin gold mines, and its bold and hardy population, furnishing the best infantry in the world, and an inexhaustible supply of men whence to recruit the armies of the republic. When 2 countries are equally desirous of war, small pretext suffices. But it was especially the policy of the Barcas, whose genius had conquered the whole of Spain in the last 17 years, and, in the next, nearly conquered Rome also, to bring on a war with that country at all hazards; and Hannibal, the son of Hamilcar, obedient to the idea to which he had been dedicated by his father in his childhood, and trained up with it foremost in his mind to manhood, easily forced what he desired, by laying siege to Saguntum, an allied city of the Romans on the seacoast, now Murviedro, and by crossing the Ebro contrary to protest, if not to treaty. The passage of Hannibal across the Alps, the victories of the Ticinus, the Trebia, Thrasymene, and Cannæ, the defeat on the Metaurus and the death of Hasdrubal, the 16 Italian campaigns, the simultaneous victories of the Roman arms in Spain and Sicily, the transfer of the war to Africa by the elder Scipio Africanus, the defeat at Zama, and the total submission, subjection, and disarming of Carthage, are the principal incidents of the 2d Punic war. Alto-

gether they contain the history of the most marvellous contest that ever was maintained between the genius of a single individual, almost unassisted by his government, and the resources, perseverance, and magnanimous constancy of a great nation. It is hard to say which is most to be admired, the unrivalled strategical and political genius, the firm tenacity, wondrous skill, and deep wisdom of Hannibal, or the indomitable persistency, unhesitating devotion, and iron will of Rome. The 2d Punic war was concluded 201 B. C., by the virtual subjection of Carthage. An interval of 52 years followed, during which Rome constantly and steadily pursued her course of aggrandizement, by the wars against Philip, Antiochus, and Perseus, by which she subjugated Greece, and gained vast oriental lustre and ascendancy, while, incited by the unrelenting hatred of Cato the censor, she encouraged her friends and allies to commit aggressions on Carthage; until at length, provoked beyond the limits of endurance, that city, in despair, took up arms to repel unendurable insult and provocation, forgetful or regardless of the clause in the late treaty which forbade them to take up arms on any pretext, or against any nation whatsoever, without consent of the Romans. After this, treacherously and dishonestly, the Romans, as the price of peace, extorted from them all their remaining ships of war, all their arms, military engines and supplies, compelled them to give 800 hostages, and then commanded them, as the only alternative by which to escape destruction, to abandon their city and seashore position, and to remove 10 m. inland. War was instantly declared, and for 8 years the unarmed, almost defenceless citizens of Rome's great rival maintained a warfare of despair. At the end of that space, a second Scipio, the son of Paulus Æmilius, the conqueror of Perseus, adopted by the son of the conqueror of Hannibal, took the city by storm, and destroyed it, razing it to the ground, passing the ploughshare over its site, and sowing salt in the furrows, the emblem of barrenness and annihilation. The city was 28 m. in circumference; the inhabitants fought from street to street, while the houses burned over their heads, during 17 days, until 55,000 persons, the whole of the survivors of a nation, were shut up in the ancient citadel called Byrsa, where they surrendered at discretion, and were all sold into slavery. Hasdrubal only, the commander, with his wife, children, and 900 Roman deserters, took refuge in the temple of Æsculapius, with the determination to defend themselves to the last, and die under the ruins of the last Punic edifice. The heart of the leader failed him, and while his wife and all his followers met the death from which he meanly shrank, he surrendered himself to be led in triumph, and to die by the hands of the Roman carnifex in the Tullianum. Long afterward, Cæsar planted a small colony on the ruins of Carthage; and Augustus, his successor, built a city, of the same name, at a small distance, in order to

avoid the imprecations which it was the habit of the Romans to invoke on the rebuilders of any city destroyed by their arms. This place attained some eminence; it was conquered by Genseric, from the Romans, A. D. 439, and continued to be the seat of the African empire of the Vandals for about a century, when it was conquered by Belisarius in 534. It was finally destroyed by the Saracens in the caliphate of Abd el Melek, in the latter part of the 7th century, and no vestiges of it remain except the ruins of an aqueduct, and a fragment of the western walls, at about 12 m. from Tunis.

CARTHAGENA, or CARTAGENA, a province of New Granada, South America, bounded N. W. and W. by the Caribbean sea and the gulf of Darien, N. E. by the province of Savanilla, E. by the rivers San Jorge and Magdalena, S. by the province of Antioquia; pop. in 1851, 103,783. In the N. the surface is low and partly covered with salt-water pools. The S. part is mountainous and thickly wooded, but has many fertile valleys, in which are produced rice, Indian corn, cotton, and sugar. Various rich fruits grow spontaneously, and the forests produce valuable timber. The trade, once very extensive, has declined considerably, and the principal exports now consist of precious metals. There are no large rivers except those on the E. border.—CARTHAGENA, or CARTAGENA, the capital and chief town of the above-described province, one of the principal ports on the Caribbean sea, and the chief naval arsenal of New Granada, is built on a small sandy peninsula, near the entrance to the gulf of Darien, connected with the mainland by narrow necks of land and wooden bridges; pop. in 1851, 83,700. The harbor is well protected, commodious, and the only one on the N. coast of New Granada fitted for repairing vessels. There were formerly 2 entrances, one close to the town, the other several miles further S.; but the better to defend the approach, the former has been blocked up by sinking old vessels in it. The defences of the town are extensive, though singularly incomplete. Both Cartagena itself and the island suburb of Xiximani are surrounded by freestone fortifications, which are commanded by a strong work on an eminence on the mainland, but the latter is overlooked by a range of heights towering 400 feet above it, which, though they have several times caused the fall of the city without a shot, have never been fortified. On their summit is an Augustinian monastery. Cartagena is well built, with stone houses, generally 2 stories high, having balconies and lattices of wood. Many of the churches and convents are very handsome. There are 2 hospitals, a town hall, a college with about 200 pupils, a strong citadel, a theatre, and a circus. The climate is hot and unhealthy; leprosy and yellow fever are the most common diseases, but greater attention to cleanliness has lately diminished the ratio of mortality. The chief manufactures are ropes and sail-cloth. The exports, comprising most of the produce of the

valleys of the Cauca and Magdalena, with the latter of which rivers Cartagena is connected by canal, viz., sugar, cotton, coffee, tobacco, hides, specie, bullion, &c., amounted to \$500,000 in 1852; and all the imports, which consist of iron, steel, copper, hardware, chinaware, machinery, tea, pimento, brandy, rice, sugar, cocoa, coffee, wax, dye-wood, &c., to \$2,000,000. Cartagena was founded by Pedro de Heredia in 1533, pillaged several times by pirates, taken by Sir Francis Drake in 1586, by the French in 1697, and besieged unsuccessfully by the English in 1741. It was the first town that declared for independence, and during the war that followed, often changed hands.

CARTHAGENA, or CARTAGENA (anc. *Carthago Nova*, New Carthage), a seaport town of Spain, capital of a district of the same name in the province of Murcia; lat. 37° 36' N., long. 0° 56' W.; pop. including suburbs in 1852, 31,593. It is built at the head of a deep, well-sheltered harbor, flanked by steep hills, defended by works at its mouth, and forming one of the best ports on the Mediterranean. The town itself is walled and neatly built; the streets are wide, regular, and relieved by several public squares, one of which, with a fine fountain in its centre, is enclosed by elegant buildings. The old cathedral, now a simple church, is an edifice of little beauty. There are several other churches, convents, hospitals, an observatory, an artillery park, a splendid arsenal, barracks, dock yards, foundries, ropewalks, and a glass factory; but little activity is observable in the streets, and every thing bears the mark of rapid decay. Notwithstanding its commodious port, the town has little or no commerce. The inhabitants are employed chiefly in lead and silver mining, fishing, and exporting barley, grain, and esparto (Spanish grasshemp). The mineral wealth of the neighborhood was known in very early times, and the yield of silver enabled Hannibal to carry on his war against the Romans. The new mine of La Carmen was opened in 1889, and the veins have since been successfully worked by a joint stock company. Cartagena was founded by Hasdrubal, the Carthaginian general, 242 B. C.; was taken by Scipio, 210 B. C., at which period, Livy states, it was one of the richest cities in the world; was almost destroyed by the Goths, rose to great importance in the time of Philip II., and in 1786 had 60,000 inhabitants. It was made the great naval arsenal of Spain, but is now visited only by a few fishing and other craft, and by coasting vessels, which make it one of their intermediate stations. Its decline is owing in some measure to its unhealthy climate.

CARTHAMUS, the dyer's saffron or safflower. The plant known as the *carthamus tinctorius*, from which this flower is obtained, is a native of India and Egypt. It is imported into the United States principally from the Mediterranean. It is grown in considerable quantities in this country, under the name of American saffron. The flowers, the only part

used, contain 2 coloring matters, one red, the other yellow; the red, insoluble in water, and the yellow, easily removed by treating it with this liquid. The red alone is employed in dyeing. It is called carthameine, and is supposed to owe its color to the oxidation of a peculiar principle called carthamine, existing in the petals. The yellow coloring matter is removed by soaking the flowers placed in a bag in water, until nothing more can be dissolved. The carthamus, which before was reddish yellow, loses half its weight, and becomes a clear red. The red coloring matter is then extracted from the flowers, in treating them with a dilute solution of carbonate of soda, and adding an acid to precipitate the carthameine. The quantity obtained is only 1 per cent. of the weight of the flowers. Carthamine is a most beautiful color, but unfortunately is not permanent, so cannot be employed in the dyeing of wool and cotton; but for silks, where a brilliant rather than enduring color is desired, carthamus is much used, for producing the finest shades of red, such as rose and flesh color. Carthamus is also used for preparing a very beautiful color (*rouge d'assiette*), which is employed in coloring artificial flowers. A vegetable rouge is also manufactured from it, by mixing with the *rouge d'assiette* finely pulverized white talc. The mixture is then rubbed in a mortar with a little ambergris, and moistened with sulphuric ether. An inferior rouge is sometimes prepared by substituting carmine for carthamine.

CARTHEUSER, JOHANN FRIEDRICH, a German physician, born Sept. 29, 1704, died at Frankfurt on the Oder, June 23, 1777. He studied medicine first at Jena and afterward at Halle, where he was admitted to the degree of doctor in 1731. He was appointed in 1740 professor of chemistry, pharmacy, and materia medica, at the university of Frankfurt on the Oder, and shortly afterward to the chair of anatomy and botany. Still later he was named professor of pathology and therapeutics. He was also appointed rector of the university, and continued to hold his appointments as long as he lived. His chief merit consists in having introduced the method of submitting the various substances of materia medica to a strict ordeal of chemical analysis. He analyzed a great number of plants and other substances, and gave an exact account of the elements which enter into their composition. He published a considerable number of scientific papers and dissertations, on many and various subjects, during a long succession of years.

CARTHUSIANS, a religious order, founded by St. Bruno, A. D. 1084. The first monastery of the order was built in a wild and solitary district 6 miles from Grenoble, in the department of Isère, known as La Chartreuse, whence the order took its name. The observances of the Carthusian monks were austere and penitential in an extraordinary degree, even among contemplative orders. They devoted a portion of their time to manual labor, consisting chiefly

in the transcribing of ancient MSS. Their labors as agriculturists gained great renown for their name, for they reclaimed marshy and unhealthy neighborhoods, and caused the rocky and barren fastnesses of La Chartreuse and other desert regions to bloom with the fruits of patient and intelligent toil. They had rich and celebrated abbeys in England, France, and Germany. The Certosa of Pavia, and that of St. Elmo at Naples, are still visited by travellers, and a Carthusian community occupies as a convent the baths of Diocletian in Rome.

CARTIER, JACQUES, a French navigator, born at St. Malo, Dec. 31, 1494, died probably at an advanced age. Under the auspices of Francis I., he was intrusted with the command of an expedition to explore the western hemisphere. He sailed from St. Malo, April 20, 1534, with 2 ships of 60 tons each, and a crew of 120 men, and in 20 days reached the E. coast of Newfoundland; thence steering N., he entered the straits of Belle Isle, and took possession of the coast of Labrador by planting there a cross near Rock bay. He next turned S., and followed the W. coast of Newfoundland to the straits between Capes Ray and Breton, when he was borne W. by unfavorable weather toward Magdalen islands. After visiting them, he continued W., landed at the mouth of the Miramichi, whence he went with some of his men to explore the bay of Chaleurs, and a few days later sailed with his 2 ships, to land again a little further N. in the bay of Gaspé, which he mistook for the outlet of a large river. He there had friendly intercourse with the savages, and inspired them with such confidence, that one of their chiefs permitted 2 of his sons to go with him to France, on condition that he would bring them back the following year. There he planted another wooden cross, to which was attached a shield bearing the arms of his king, and the words, *Vive le roi de France!* He next proceeded N. E., doubled the E. point of Anticosti, and entering the channel which separates the island from the continent, sailed up that branch of the St. Lawrence, not being aware, however, of the existence of the river. As winter was approaching, he thought it prudent to return, again passed the straits of Belle Isle, and arrived at St. Malo Sept. 5, 1534, after an absence of less than 6 months. This successful voyage encouraged the king to new efforts: 3 well-furnished ships were fitted out for another expedition, which was joined by some of the young nobility of France, and Cartier was appointed commander, being designated in the commission as "captain and pilot of the king." About the middle of May, 1535, Cartier assembled his companions and men on Whit-Sunday, and repaired to the cathedral, where a solemn mass was celebrated, after which the whole company received absolution and the bishop's blessing. The squadron—consisting of La Grande Hermine, a vessel of 120 tons, La Petite Hermine, of 60, and L'Emerillon, a smaller craft—sailed May 19. Storms soon separated the 3



vessels, which, after a rough voyage, arrived successively at their place of rendezvous, the inlet of Blanc Sablon, in the straits of Belle Isle. On July 31 they sailed W., entered the channel between the mainland and Anticosti, which he called Ile de l'Assomption; sailed up the river St. Lawrence; saw, Sept. 1, the mouth of the Saguenay; and on Sept. 14 came to the entrance of a river, some 80 m. below Quebec, to which he gave the name of Sainte Croix. The next day he was visited by Donnacona, an Algonquin chief, with whom he was enabled to converse, the 2 Indians whom he had the previous year taken from Gaspé to France acting as interpreters. Leaving his 2 larger ships safely moored, he, with the Emérillon, sailed up the stream as far as Lake St. Peter; there, his further progress being interrupted by a bar in the river, he took to his boat with 3 volunteers, and on Oct. 2 arrived at an Indian settlement called Hochelaga, which he called Royal Mount, whence the present name Montreal. On the 5th he left Hochelaga and rejoined his ships at the mouth of the Sainte Croix, where he passed the winter. With his men, he suffered from the severity of the climate, but above all from the scurvy, which made frightful ravages among them; no less than 25 soon died; and out of 110 still surviving, in Feb. 1536, only a few were free from the disease. Owing to the reduction of their number, Cartier decided to abandon the Petite Hermine, which vessel was discovered in 1848 embedded in the mud. After having taken solemn possession of the land in the name of Francis I., by erecting a cross bearing the arms of France, with the inscription, *Franciscus primus, Dei gratia Francorum rex, regnat*, he sailed May 6, carrying with him Donnacona and 9 other chiefs, whom he had somewhat treacherously kidnapped; went through the channel S. of Anticosti, and the straits S. of Newfoundland, and once more reached St. Malo, July 16, 1536. The hardships which had been incurred during the expedition were not encouraging to colonization; but at last the entreaties of Francis de La Roque, lord of Roberval in Picardy, prevailed; he was appointed viceroy and lieutenant-general of the new territories, while Cartier preserved the title of captain-general and chief pilot of the king's ships. Five vessels were now fitted out; Cartier sailed with 2 of them, May 23, 1541; he was soon joined by the 3 others, and they arrived at Sainte Croix Aug. 23. On exploring the neighboring country, Cartier found a better harbor at the mouth of the Red river, to which he took 3 of his ships, while the 2 others returned to France after landing their cargoes. Cartier then visited Hochelaga for the 2d time, with the particular purpose of ascertaining the obstructions to further navigation. The winter passed in gloom. Toward the end of May, 1542, nothing having been heard from Roberval, provisions becoming scarce, and the savages evincing unfavorable feelings, Cartier sailed for France. On his way he met Roberval, who

ordered him back; but he took no notice of it, and continued steering for France, where he arrived without any further accident. From that time he lived quietly, either at St. Malo or at the village of Limoilon; the date of his death is unknown. A brief, but interesting account of his expedition appeared anonymously in 1544. The journals of the two 1st journeys of Cartier are inserted in the 8d vol. of Ramusio's Italian collection (Venice, 1565), also in Marc Lescarbot's *Histoire de la Nouvelle France*; while a description of his 3d journey is to be found in the 8d vol. of Hakluyt's "Principal Navigations," &c. (1600).

**CARTILAGE**, a firm, elastic substance, of an apparently homogeneous structure, bearing some analogy to bone, and entering largely into the composition of the animal skeleton; in its intimate structure it approaches very closely the cellular tissues of vegetables. It constitutes the rudimentary skeleton of the higher molluscs, and of the selachian fishes, hence called cartilaginous fishes, in man and the higher animals, it forms the internal skeleton at the early periods of life, and is in all employed as a nidus for the development of bone. The organic basis of cartilage is a variety of gelatine, called chondrine; this, like gelatine, in a watery solution solidifies on cooling, and may be precipitated by alcohol, creosote, tannic acid, and corrosive sublimate, and is not precipitable with ferrocyanide of potassium; but, unlike gelatine, it is precipitable with acetic and the mineral and other acids, with alum, persulphate of iron, and acetate of lead. True cartilage is of a white or bluish white appearance; fibro-cartilage is of a yellowish color, and exhibits a fibrous structure. Temporary cartilages supply the place of bone in early life, and gradually become ossified; for a considerable time after birth the ends of the long bones are composed chiefly of cartilage, and the extremities are not united to the shafts by bone until about the 30th year. Permanent cartilages are divided into 2 kinds, the articular and the membraniform; the skeleton of the selachians is also permanent cartilage. Articular cartilages cover the ends of bones entering into the formation of joints, either a thin layer between almost immovable bones, as those of the cranium, and ilium and sacrum, or incrusting the ends in the free-moving ball-and-socket and hinge joints. The membraniform cartilages have no relation to locomotion, but serve to keep open canals or passages by the mere force of their elasticity; such are the cartilages of the external ear, nose, edge of the eyelids, Eustachian tube, and the air-passages. The distinguishing characters of cartilage are elasticity, flexibility, and cohesive power; it is not easily broken, and will speedily resume its proper shape when bent by accident or design. These varieties of cartilage, except the articular, are covered with a fibrous *perichondrium*, analogous to the *periosteum* of bones, which serves as support to the blood-vessels. The simplest form of cartilage consists of nucleated

cells, large, ovoid, more or less flattened by their mutual contact; the diminutive nucleus, attached to the cell wall, contains a minute nucleolus; these cells are scattered irregularly in an intercellular substance, or hyaline matrix, which contains numerous granules, many of which, according to Hassall, must be regarded as the cytoblasts from which new cells are developed; the amount of this substance is greatest in the fully developed cartilage. In the condensed margin of true cartilage, the cells are compressed, with their long diameters parallel to the surface they cover; when ossification begins in temporary cartilage, the cells become disposed in rows, as described in the article on BONE. In the articular cartilages the cells are arranged in small groups in an abundant hyaline matrix; they measure from  $\frac{1}{100}$  to  $\frac{1}{15}$  of an inch; in their deep portions these cartilages gradually blend with the bone, which dips unevenly into the substance of the cartilage. In the cartilages of the ribs the cells are larger than in any other, being from  $\frac{1}{100}$  to  $\frac{1}{15}$  of an inch in diameter; they often have a linear arrangement, and are imbedded in a very abundant intercellular substance, which sometimes presents a distinctly fibrous structure, though not resembling white fibrous tissues. In the membraniform cartilages, the cells are very numerous in proportion to the intercellular substance, which is so fibrous in its character in the external ear as to approach very near to fibro-cartilage; the ear of the mouse is a good specimen of this form, and presents in its central portion a series of six-sided cells arranged in layers one above the other, resembling, except in size, the transverse section of the pith of a plant. Cartilage is sometimes found as an accidental and diseased product. *Enchondroma* is a tumor attached to bone, containing cells like those of cartilage, and others of a peculiar form resembling the lacunæ of bone. In the articulations, especially in the knee joint, loose rounded bodies are often found, of a cartilaginous consistence, frequently as large as the knee-pan; these interfere with the motions of joints, and are sometimes removed by operation. The cartilage cells of reptiles are larger than those of fishes, being largest in the siren; in birds cartilage is very early converted into bone, so that they have very little of it except in the joints; the largest cells in the mammals, according to Mr. Quekett, are found in the elephant. Cartilage belongs to non-vascular substances, as considerable masses are found unpenetrated by a single vessel; articular cartilage is non-vascular, except in some diseased conditions when the presence of a few vessels seems to have been detected; temporary cartilage also, when in small mass, has no vessels, but when of considerable thickness, the delicate extensions of the investing perichondrium penetrate it in a tortuous manner; the membraniform resemble the temporary cartilages in respect to vascularity. The nutriment of articular cartilage is derived from the vessels of the joint, and from

the synovial membrane, though none of these enter its substance, the nutrient material passing from cell to cell by imbibition; in cartilages of ossification vessels regularly appear, accompanying the process of bone-formation. According to Hassall, cartilage cells are multiplied in 2 ways: 1, by the division of a single cell into 2 or more parts, each becoming a distinct cell; 2, by the development of cytoblasts in the intercellular substance, or in the parent cells, constituting a true reproduction, constantly going on. In this multiplication by division, and by development of secondary in parent cells, cartilages resemble the *algæ*, and herein they stand alone in the animal economy. Cartilage cannot be regenerated; fractured surfaces are united only by a condensed cellular tissue. As cartilages do not contain nerves and vessels, they are not subject to inflammation and its consequences; the so-called ulceration of cartilage is effected, not through the cartilage itself, but by the vessels entering it from bone and synovial membrane, and occasioning a partial erosion.—There is a form of tissue which may be described here, as it differs from cartilage chiefly in having its intercellular substance replaced by white fibrous tissue; it is therefore called fibro-cartilage. It occurs principally in the joints, where its strength and elasticity are most needed. Its color is white, slightly tinged with yellow, with the shining fibres of the white fibrous tissue quite conspicuous; its consistence varies from pulpy to very dense. The fibres are arranged in an intricate and interlaced manner, strongest in that direction in which the greatest toughness is required. To the strength of fibrous tissue is added the elasticity of cartilage; its vessels are few and derived from adjacent textures, and no nerves have been detected in it; its sensibility is low, and it has no vital contractility. The disks between the vertebrae are fibro-cartilage; their elasticity diminishes the shocks to which the spinal column is necessarily subjected; in the whale these disks are very large, detached from the vertebral bodies, and more or less ossified. In the diarthrodial joints, as in the sterno-clavicular, temporo-maxillary, and knee joints, there are fibrous laminae, free on both surfaces, called *menisci*; in these the circumference is fibro-cartilage, and the centre more cartilaginous. On the edges of the shoulder and hip joints is a rim of fibro-cartilage, giving depth to the articular cavities. In the grooves in bone for the lodgment of tendons we find another instance of the occurrence of fibro-cartilage. Fibro-cartilage is not so prone to ossification as the simple fibrous structures; it is repaired by a new substance of similar texture; in cases of false joint from the non-union of fractured bone, the broken ends are sometimes connected by fibro-cartilage. The pubic bones at the symphysis are united by this tissue. Fibro-cartilage is less soluble in water than true cartilage, and yields therefore less chondrine.—The uses of cartilage and fibro-cartilage are entirely of a

mechanical nature; their structure is admirably adapted for the protection of organs by their solidity, flexibility, and elasticity. For a complete account of the intimate structure of articular cartilage, the reader is referred to a paper by Dr. Joseph Leidy, in vol. xvii. of the "American Journal of Medical Sciences," new series, and to the works of Müller, Todd and Bowman, Hassall, and Quekett.

**CARTOON** (It. *cartona*, from Lat. *charta*, paper), a picture drawn upon thick paper, with white and brown, or black, and intended to be a model for a fresco, or for tapestry. When the cartoon is used, its back is covered with black lead, and being placed against the wall or canvas, the outlines are traced with a pointed instrument. Sometimes the outlines are pricked through, and a coloring matter rubbed over it. Or, by drawing intersecting lines on both the cartoon and the canvas, forming squares equal in size, by their guidance, a copy may be made correct in position and proportion. Cartoons exhibit the greatest efforts of some of the masters in painting. There are 7 by Raphael, now in Hampton Court, England, which probably are not excelled in completeness and beauty by any paintings in existence. Leo X. employed Raphael to make designs for tapestry, and 2 sets were finished in tapestry at Arras in Flanders. One set, supposed to have been originally 25 in number, was sent to Rome, and was carried away twice: first in 1526, afterward restored entire; the second time in 1798, and all but one restored in 1814, which was supposed to have been destroyed for the gold used in its making. The cartoons themselves were kept as lumber in the factory in Flanders, until, on the recommendation of Rubens, Charles I. of England purchased the 7 which had escaped destruction. They were much injured by being pricked and cut in tracing them for the canvas. When the royal collection was sold, these cartoons were preserved to England by Cromwell's special command. During the reign of Charles II. they were consigned to neglect, but William III. had them placed in Hampton Court. They represent the following subjects: "Paul preaching at Athens," the "Death of Ananias," "Elymas the Sorcerer struck with Blindness," "Christ Delivering the Keys to St. Peter," the "Sacrifice at Lystra," the "Apostles healing the sick in the Temple," and the "Miraculous Draught of Fishes." Two cartoons of Raphael, said to belong to a set which was sent to Flanders, are in the possession of the king of Sardinia. The Palazzo Gualtieri at Orvieto contains a valuable collection of cartoons by Domenichini, Annibale Carracci, Franceschini, Albani, &c. In the Ambrosian library at Milan is the original cartoon of Raphael's "School of Athens," the fresco of which is in the Vatican.

**CARTOUCH**, (Fr. *cartouche*), in old military works, used sometimes as synonymous with case or grape shot. It is also now and then used to

designate the cartridge-box of the infantry soldier.—In architecture and sculpture, a block or modillion in a cornice, and generally an ornament on which there is some device or inscription.

**CARTOUCHE**, LOUIS DOMINIQUE, a noted French robber, born in Paris about 1693, died Nov. 28, 1721. He organized a band of desperadoes, whose robberies and murders spread terror among the Parisians. For years, indeed, notwithstanding a high price had been put on his head, he baffled the police, and was but accidentally arrested. His trial, which lasted for several months, created a deep sensation; and an immense crowd gathered to witness his execution. He was broken on the wheel alive; but to the last moment the public and himself were under the impression that he would be forcibly rescued by his companions.

**CARTRIDGE**, a paper, parchment, or flannel case or bag containing the exact quantity of gunpowder used for the charge of a fire-arm, and to which, in some instances, the projectile is attached. Blank cartridge, for small arms, does not contain a bullet; ball cartridge does. In all small-arm cartridge the paper is used as a wad, and rammed down. The cartridge for the French Minié and British Enfield rifle is steeped in grease at one end, so as to facilitate ramming down. That of the Prussian needle gun contains also the fulminating composition exploded by the action of the needle. Cartridges for cannon are generally made of flannel or other light woollen cloth. In some services, those for field service at least have the projectile attached to the cartridge by means of a wooden bottom whenever practicable; and the French have partially introduced this system even into their naval service. The British still have cartridge and shot separated, in field as well as in naval and siege artillery.—An ingenious method of making paper cartridges without seams has been lately introduced into the royal arsenal, Woolwich, England. Metallic cylindrical hollow moulds, just large enough for a cartridge to slip over, are perforated with a multitude of small holes, and being introduced into the soft pulp of which cartridge paper is made, and then connected with an exhausted receiver of an air-pump, are immediately covered with a thin layer of the pulp. This, on being dried, is a complete paper tube. The moulds are arranged many together; and each one is provided with a worsted cover, like the finger of a glove, upon which the pulp collects, and this being taken off with it serves as the lining with which the best cartridges are provided.—A kind of cartridge is in use for sporting pieces, made of a network of wire containing the shot only. It is included in an outer case of paper. The charge of shot is mixed with bone dust to give compactness. When the piece is fired, the shot are carried along to a much greater distance without scattering than if charged in any other way.

**CARTWRIGHT**, EDWARD, an English clergy-

man, inventor of the power loom, born at Marnham, Nottinghamshire, April 24, 1748, died Oct. 30, 1823. Being intended for the church he received his education at Oxford, and soon entered upon the duties of his profession. His early life was passed in lettered ease, and was especially devoted to poetical composition. During the summer of 1784 happening to be at Matlock, he had a conversation with some gentlemen from Manchester on the subject of mechanical weaving. He had never till now, in his 40th year, taken any interest in mechanics, but by April of the succeeding year, he had his first power loom in running order. The invention was opposed equally by spinners and their workmen. The one class saw in it a machine that would deprive them of bread; the other feared it was a device that would diminish their profits. A mob set fire to the first factory and burned it with 500 spindles. Improvements were added to the original machine, and it slowly made its way. For many years, however, Cartwright derived no pecuniary benefit from his invention. He patented several other machines, of which the principal was one for wool-combing. Numerous societies awarded him premiums, but he received no substantial benefit from any of his inventions until 1807, when, on the memorial of the principal cotton spinners, parliament voted him £10,000. This sum placed him in easy circumstances. He devoted his time to experiments in the adaptation of steam power to boats and carriages, but died without attaining any important result.

CARTWRIGHT, JOHN, elder brother of the preceding, an English political reformer, was born at Marnham, Nottinghamshire, 1740, died Sept. 23, 1824. At the age of 18 he entered the navy, but at 35 was still a lieutenant. Meantime the struggle between Britain and her colonies enlisted his sympathies for the Americans. In 1774 he published his sentiments in an essay entitled "American Independence, the Glory and Interest of Great Britain." At the same time, he requested to be placed on the retired list, rather than fight against the colonists. Lord Howe vainly attempted to shake his resolution in this respect. Having retired to Nottinghamshire, where he possessed some property, the lord lieutenant gave him a commission as major in the militia. His appointment gave great offence to the government, who signified their disapprobation so pointedly to the lord lieutenant that he refused Cartwright the usual step of promotion to the lieutenant-colonelcy, although 5 successive vacancies occurred in that office. Finally he retired from the regiment, 1792. About this time he removed to Lincolnshire. His name now becomes prominent in the history of parliamentary reform. He contended for annual parliaments and universal suffrage. These he supported with voice and pen, in coöperation with Dr. Jebb, Granville Sharpe, Horne Tooke, Hardy, Thelwall, Cobbett, Hunt, and other liberals of the day.

Mainly through his instrumentality the citizens of Birmingham were induced to elect a delegate claiming a seat in parliament under the name of their legislative attorney, although that city, the 8d in the kingdom, had no representation in that body. For his share in this proceeding, Cartwright was tried for sedition, and fined £100. Again, when procuring signatures in Huddersfield to a mammoth petition, he was arrested on a charge of exciting to riot, but released. The English liberals placed much reliance in the integrity of his purposes. Sir William Jones declared that his declaration of the people's rights should be written in letters of gold. Fox, in his place in parliament, declared that few men united so complete a knowledge of the people's constitutional rights, with such high intelligence, and such conscientious views. Byron, in the house of lords, declared that his long life had been spent in one unceasing struggle for the liberty of the subject. His views on the American revolution were summed up in this sentence: "The liberty of man is not derived from charters but from God, and is original in every man." He was one of the earliest who maintained the doctrine that the slave trade was piracy. A bronze statue is erected in his honor in Burton-crescent, London. His life was published by his niece (2 vols. 8vo. Lond., 1826).

CARTWRIGHT, THOMAS, a Puritan divine, born in Hertfordshire about 1535, died Dec. 27, 1603. He studied divinity at St. John's college, Cambridge; afterward he turned his attention to the legal profession, and became clerk to a counsellor at law. Eventually, however, he returned to the university, and was chosen fellow of St. John's in 1560. In 1570 he was chosen Lady Margaret's reader of divinity, and while he occupied that chair he provoked the hostility of Sir William Cecil and Dr. Whitgift, by the constancy with which he advocated the Puritan doctrines and discipline; and in 1571, when the latter became vice-chancellor of the university, he was deprived of his professorship, and, in the following year, of his fellowship. He now repaired to the continent, where he became acquainted with the most eminent Puritan divines in the Protestant universities of Europe, and subsequently was chosen minister to the English merchants at Antwerp and Middelburgh. At the end of 2 years, at the solicitation of his friends, he returned to England, and published a second admonition to parliament in behalf of the Puritans. A protracted controversy with Whitgift, afterward archbishop of Canterbury, was the result of his publication, and Cartwright had again to expatriate himself to escape from his opponent. While abroad, he officiated as minister to English communities. In 1580 James VI. of Scotland offered him a professorship in the university of St. Andrew's, which Cartwright declined. He was imprisoned on his voluntary return, but was released through the influence of Burleigh and Leicester. Leicester made him mas-

ter of the hospital which he had founded at Warwick. He was again committed to prison at various periods, and did not obtain his liberty until 1592, when he was reinstated in his mastership of the Warwick hospital, and was again permitted to preach. His "Confutation of the Rhemish Translation, Glosses, and Annotations on the New Testament," was not published till after his death, in 1618. He was also the author of several other works.

CARUPANO, a town of Venezuela, on the coast of the Caribbean sea, finely situated at the opening of 2 valleys, in the province of Cumana, within a few miles of Cariaco. Its harbor is defended by a battery, and it has considerable traffic in horses and mules. Pop. about 8,000.

CARUS, KARL GUSTAV, a German physician and naturalist, born in Leipsic, Jan. 8, 1789. After pursuing the usual course of study in the gymnasium and university of his native place, he devoted himself to chemistry, with a view of rendering his knowledge useful in the workshop of his father, who was a dyer. He soon, however, left chemistry for medicine, and graduated as M. D., in Leipsic, in 1811. Engaged as teacher in the university, he was the first to deliver there a distinct course of lectures on comparative anatomy. In 1813 he was appointed to the French hospital established at Pfaffendorf, near Leipsic, and by his devotion to his patients contracted a severe illness. The following year, on the reorganization of the medico-chirurgical academy of Dresden, he was appointed professor of midwifery, and at the same time had the clinical direction of the lying-in hospital. In 1827 Carus resigned his professorship on being appointed physician to the king of Saxony, with the title of royal and medical councillor. He continued, however, to lecture, and in 1827 delivered a course of lectures on anthropology, and in 1829 on psychology, which added greatly to his previous reputation. In the latter year he attended Prince Frederic Augustus, the present king of Saxony, on his tour through Switzerland and Italy. Beside his professional and scientific labors, Dr. Carus is a painter of marked talent; many of his pictures are much esteemed by amateurs. The reputation of Carus rests mainly on his discovery of the circulation of the blood in insects, for which he received a prize from the French academy of sciences, and his contributions to the history of development in animals. His principal works are *Versuch einer Darstellung des Nervensystems, und insbesondere des Gehirns* (Essay on the Nervous System, and particularly on the Brain), Leipsic, 1814; *Lehrbuch der Zoötomie* (Manual of Zoöatomy), with 20 plates engraved by himself, Leipsic, 1820; *Erläuterungs-Tafeln zur vergleichenden Anatomie* (Explanatory Tables for Comparative Anatomy), 8 vols., Leipsic, 1826-'31; *Ueber den Blutkreislauf der Insecten* (On the Circulation of the Blood in Insects), Leipsic, 1827; *Grundsätze der vergleichenden Anatomie und Physiologie* (Principles of Comparative Anatomy and Physiol-

ogy), 3 vols., Dresden, 1828; *Vorlesungen über Psychologie* (Prelections on Psychology), Leipsic, 1831; *Briefe über Landschaftsmalerei* (Letters on Landscape Painting), Leipsic, 1831; *Symbolik der menschlichen Gestalt* (Symbolism of the Human Form), 1853.

CARUS, MARCUS AVRELIUS, a Roman emperor, born about A. D. 222, died 283. His father was an African, and his mother a noble Roman lady. He was proclaimed emperor by the legions, on the assassination of Probus, 268. He caused justice to be executed upon the assassins. He gained a signal victory over the Sarmatians, and prosecuted the war against the Persians. Undertaking the campaign in mid-winter, and making a rapid march through Thrace and Asia Minor, he ravaged Mesopotamia, made himself master of Seleucia, and carried his arms beyond the Tigris, where he died suddenly in his camp.

CARVAJAL, TOMAS JOSÉ GONZALES, a Spanish statesman and author, born in Sevilla, Dec. 21, 1758, died Nov. 9, 1834. He was appointed in 1795 governor of the new colonies in Sierra Morena and Andalusia; protested against the French invasion of Spain in 1808; from 1809 to 1811 served as commissary in the Spanish army against Bonaparte; in 1813 became minister of finance; relinquished these offices to assume the directorship of the royal university of Isidro, where he became involved in difficulties by establishing a professorship of constitutional law. He was arrested and detained in prison from 1815 to 1820, when the revolution reinstated him at San Isidro. A counter revolution brought his opponents into power, and he was exiled from 1823 to 1827. However, at the time of his death he was member of the supreme council of war, of the military department of the Spanish and Indian boards, and a grandee of Spain. He learned Hebrew at the age of 57 in order to translate the Psalms. This translation has gained for him a high reputation for poetical power, which he evinced also in several original productions.

CARVALHO, JOSÉ DA SILVA, a Portuguese statesman, born in Beira in 1782, died Feb. 3, 1845. He was a member of the regency and appointed minister of justice until 1823, when, on the downfall of the constitutional government, of which he was a foremost champion, he was obliged to resort to flight to England, where he remained until 1826, when he returned to Lisbon, but Don Miguel's success again compelled him to leave. Eventually he was named a member of the council of guardianship instituted by Don Pedro for the young queen Donna Maria, and succeeded in negotiating the first English loan for Portugal. Having accompanied Don Pedro to the Azores, he filled, on his return to Portugal, important offices, and became finance minister in 1832. In 1835 he retired with the Palmella administration, and was presently obliged to retire to England, where he remained until 1839, when a general amnesty was proclaimed.

**CARVALHO Y MELLO.** See **POMBAL**.

**CARVALLO, MANUEL**, a Chilean statesman, born at Santiago in June, 1808. He received a superior education; devoted himself from his earliest youth to literary pursuits, and at the same time to the study and the practice of the law. In 1880 he became chief clerk of the congress of plenipotentiaries in his native town. He was also appointed chief clerk of the state department, and elected a member of the Chile house of representatives. Afterward he was sent on a diplomatic mission to Washington, where for some time he held the position of chargé d'affaires of Chile near the U. S. government. In 1885, on his return home, he devoted himself exclusively to the law, in which he acquired eminence, and many of the more complicated cases in which he was engaged as counsel were embodied by him in a permanent publication. He is a member of the committee for the reform of the Chilean codes, of the faculty of law and political sciences of the university of Santiago, but he chiefly excels as an international lawyer. In 1846 he resided again for some time as minister at Washington.

**CARVER, JOHN**, first governor of Plymouth colony, born in England, date unknown, died in April, 1621. He had quitted his country for the sake of religion, and had established himself at Leyden, whence he was sent to effect a treaty with the Virginia company concerning territory in N. America. He obtained a patent in 1619, and proceeded to N. America in the *Mayflower* with 101 colonists. After a dangerous voyage they arrived at Plymouth, where Carver was unanimously elected governor. He managed the affairs of the infant colony with prudence, and exhibited great address in his intercourse with the Indians, but died within 4 months after landing.

**CARVER, JONATHAN**, an American traveler, born at Stillwater, Conn., in 1782, died in London in 1780. He abandoned the study of medicine for a military life, and was in all the wars by which the Canadas came into the possession of Great Britain. At the peace he undertook to explore the interior of N. America, and to open new channels of commerce. He crossed the continent to the Pacific, and returned to Boston in 1768, having travelled about 7,000 miles. Proceeding to England, he unsuccessfully solicited from the king requital of his expenses, and aid in publishing his charts and journals. He was even commanded to deliver up his papers, now ready for publication, as being the property of the government, and was obliged to repurchase his papers from the bookseller to whom he had sold them. Ten years afterward he published an account of his travels.

**CARY, COL. ARCHIBALD**, a Virginia patriot and statesman, born in Virginia about 1780, died Sept. 1786. He early became a member of the house of burgesses, where he ranked with the first intellects of the epoch. In 1764 he served on the committee which re-

ported the address to the king, lords, and commons, on the principles of taxation; and in 1770 was one of the signers of the "mercantile association," which pledged its members to use no British fabrics thereafter, the design being to resist by practical measures the encroachments of the government. In 1778 he was one of the celebrated committee of correspondence by which the colonies were united into one great league against parliament; in the following year he was a member of the convention which appointed delegates to the general congress; and he served with great distinction in the convention of 1776. As chairman of the committee of the whole, he reported the resolutions instructing the Virginia delegates in congress to propose independence, and from his lips fell the declaration of Jefferson, the bill of rights of Mason, and the first constitution of Virginia. When the state government was organized under this constitution, he was returned to the senate, where he presided with great dignity and efficiency. At this time occurred the incident with which his name is most generally connected. The scheme of a dictatorship had been broached, and without his knowledge or consent, Patrick Henry was spoken of for the post. In the midst of the general agitation Col. Cary met Mr. Henry's half-brother in the lobby of the assembly, and said to him: "Sir, I am told that your brother wishes to be dictator. Tell him from me, that the day of his appointment shall be the day of his death, for he shall find my dagger in his heart before the sunset of that day." The project was speedily abandoned. Col. Cary soon afterward retired to his estate of Amptill, in Chesterfield, where he died, greatly respected and beloved. His family was of noble extraction, descended from Henry Lord Hunsdon; and, at the time of his death, Col. Cary was himself the heir apparent of the barony. In person he was short of stature, but possessed great personal beauty. His features were small and delicately chiselled; his eye remarkable for a very peculiar brightness, as his portrait shows. He was a good representative of the former race of Virginia planters, delighting in agricultural pursuits, in blooded horses, and improved breeds of cattle, which he imported from England, and attended to with great care. In character he was a man of singular courage; his serene intrepidity shrunk from no peril, and counted no cost where his honor or rights were concerned. From this trait of his character he was called by his contemporaries "Old Iron," a name which still clings to him in Virginia, where his memory is held in high respect.

**CARY, HENRY FRANÇOIS**, an English writer, born in 1772, died in Sept. 1844. He early distinguished himself by an original ode on the misfortunes of Poland, and having entered Oxford devoted himself with ardor to the study of the modern European languages. His translation into blank verse of the *Divina Commedia* of Dante has gained him celebrity among all

readers of the English tongue. This great work did not, however, attract much attention until Coleridge brought it into notice by his commendations. Cary also translated the "Birds" of Aristophanes, and some odes of Pindar. His continuation of Johnson's "Lives of the English Poets," and his "Lives of the Early French Poets," are meritorious productions; the latter were published anonymously in the "London Magazine." From 1826 he was assistant librarian of the British museum for six years. He published carefully revised editions of Pope, Cowper, Milton, Thomson, and Young.

CARY, Rev. Lorr, born a slave, near Richmond, Va., in 1780, died at Monrovia, Nov. 8, 1828. In his youth he became vicious and profane, but in his 27th year he was converted and joined the Baptist church. With the change in his character came the thirst for knowledge. Possessed of a high order of native talent, he soon learned to read and write, and after a time he began to preach to his countrymen with great acceptance. He succeeded in raising by extra work \$850, with which he redeemed himself and his 2 children from slavery. He was then employed in a tobacco warehouse at a salary of \$800, and subsequently of \$1,000 per annum. In 1815 he became much interested in Africa and in the establishment of missions there. When the journal of Messrs. Mills and Burgees, who had been sent out to explore the country and secure a site for a colony, was published, Mr. Cary read it with great interest, and in company with a friend, Colin Teage, determined to emigrate to Africa. He sailed accordingly in Feb. 1821, and was instrumental in the removal of the colonists from their first unhealthy position to Cape Mesurado, now Monrovia. Faithful, energetic, and intelligent, he was now the leader in the erection of cabins for the settlers, then felling trees, prescribing for the sick, preaching to his countrymen, or fighting bravely against the savages who had determined to exterminate them. Once, when the colonists had become dissatisfied with the course of the colonization society in regard to the tenure of their lands, Mr. Cary took sides with them against the agent, Mr. Ashmun, although personally his friend. It was a time of gloom, of doubt, of trial; but the calm, firm spirit of Ashmun rose above the gloom. Although aware that the colonists had some reason for complaint, he felt that their only safety lay in obedience to the company's orders until they could be modified, and that this could only be effected by appeals to their reason and judgment. He accordingly stated to them clearly and plainly the result of their continued refusal to obey the directions of the company, and demanded an immediate pledge of obedience from those who were willing to act with him. It is in the highest degree creditable to Mr. Cary, that seeing the evils which would follow insubordination, he came forward, and frankly proffered

his hand to Mr. Ashmun, saying as he did so, "I give the pledge, sir; I acknowledge my error, and cheerfully submit to the laws of the society. Henceforth, I stand by her side, so help me God!" Some 3 or 4 years later, when Mr. Ashmun found himself worn out by his incessant toil in that deadly climate, he sailed for the U. S., in Sept. 1826, leaving the entire control of the colony in the hands of Mr. Cary. The explosion of a cask of powder in a building, where he was making preparations to repel an assault made by the natives, killed him.

CARYATIDES, in architecture, female figures which support a roof in lieu of columns or pilasters. The story is that the inhabitants of Caryæ, an Arcadian village, joined the Persians after the battle of Thermopylæ; after the defeat of the Persians the confederate Greeks destroyed Caryæ, put the male inhabitants to death, and enslaved the women. Sculptors in commemoration of their infamy made use of representations of these women to sustain roofs and heavy superincumbent weights.

CASA SANTA, the "holy house" of Loreto, in which the Blessed Virgin is said to have dwelt at Nazareth. According to Catholic tradition, angels bore it away from Nazareth in 1291, and placed it near Tersatto, in Dalmatia, whence, 8 years afterward, it was transported to the coast of Italy, near Recanati. Eight months later it was removed 1,000 paces nearer the town. It changed its position again to the lands of a noble lady named Lauretta, and fixed itself on the spot where the town of Loreto has since been built. The house is 82 feet long, 13 feet broad, and 18 feet high, with a heavy arched roof. It has no foundations, is built of brick similar in color and texture to varieties found in Palestine, and is surrounded by a wall. The interior is adorned with paintings in the Byzantine style, now nearly effaced, and this circumstance is supposed to confirm the account given by historians that St. Helena adorned it before its removal from Palestine. In a niche, formerly of mosaic gold work enriched with precious stones, but now of silver gilt and filagree work, is the ancient statue of the Virgin, made of the cedar of Lebanon, and removed to Loreto simultaneously with the house. It was carried to Paris in Feb. 1797, restored by Napoleon I. to Pius VII., and by that pontiff enriched with precious stones, and carried back to Loreto, Dec. 8, 1802. Several apostolic constitutions set forth that the house of Loreto is that in which the Saviour became incarnate. It has ever been a favorite object of devotion for Catholic pilgrims.

CASABIANCA, Louis, a French naval officer and politician, born about 1755 at Bastia, died Aug. 1, 1798. He entered the naval service when very young, and distinguished himself by his prowess. Having adopted the principles of the French revolution, he was elected to the national convention; on the trial of King Louis XVI. he did not vote for death, but merely for imprisonment. He subsequently became a

member of the council of 500; after which he was appointed captain of L'Orient, the flag-ship of Admiral Brueys, the commander of the fleet which took Bonaparte and his army to Egypt. When this fleet was attacked by the English in the bay of Aboukir, Casabianca fought most bravely to the last, and was killed with his son, then 10 years old, by the explosion of his ship.

CASAL, or CAZAL, MANUEL AYRES DE, a Portuguese geographer, born in the last half of the 18th century, died at Lisbon in the middle of the present century. Having received an excellent education, he took holy orders, but afterward devoted himself to the exploration of Brazil. He has been styled the father of Brazilian geography, and his principal work, entitled *Corografia Brasileira* (1817, 2 vols.) elicited the admiration of Humboldt and of other competent judges.

CASAL MAGGIORE, a town of Lombardy, province Cremona, on the left bank of the Po. Pop. 4,907. A naval victory was achieved here by Sforza over the Venetians in 1448. Tanneries, and the manufacture of glass, pottery, and cream of tartar, are carried on in the town.

CASAL PUSTERLENGO, a town of Lombardy, government of Milan, on the Brembiolo. It is the seat of several public offices, has a church and sanctuary, manufactures of silk, linen, and earthenware, and an extensive trade in Parmesan cheese. Pop. 5,601.

CASALE, the capital of a province of the same name in the kingdom of Sardinia, situated on the right bank of the Po, 85 m. from Milan, and 37 m. from Turin, near the site of the ancient Sedula. The citadel, founded by Duke Vicenzo in 1590, was one of the strongest in Italy, but recently its ramparts have been converted into promenades, and its defences are now insignificant. Casale was the capital of the ancient marquise of Montferrat, and has sustained several sieges, and frequently changed its masters. It is the seat of a bishop and of a district court of justice, and has a cathedral which is said to have been founded in the 8th century. Its church of San Domenico, containing a tomb in memory of the princes Palaeologi, is remarkable for the elegance of its design, and several fine works of art are found in other of its churches. Among the prominent articles of trade are silk and sirup manufactured from the roots of a species of reed. Pop. 21,000.

CASANOVA, GIOVANNI GIACOMO DE SEINGALT, an accomplished Don Juan of the 18th century, who travelled from land to land, captivating the hearts of women and fascinating the minds of men, born in Venice, April 2, 1725, died in Vienna in June, 1803. We hear first of the Casanova family at the beginning of the 15th century, when Giacomo Casanova, a Spaniard of the Aragon house of Palafors, and a secretary of the king of Aragon, produced a sensation at Rome by eloping with a nun. His son Giovanni was expelled from Rome in 1481, on account of a duel, and joined

the expedition of Columbus. Marco Antonio, Giovanni's son, a poet, was expelled from Rome by Giulio de' Medici, against whom he had published a satire. His grandson, Cajetano Giuseppe Giacomo, led an adventurous life, which he crowned by turning comedian, and by marrying Zanitta Farusi, the beautiful daughter of a Venetian shoemaker. Cajetano and Zanitta were the parents of the subject of this notice, who, when only 10 years old, vindicated his birth by making love to Bettina, the pretty sister of the abbé Gozzi, under whose instruction he was placed at Padua. Implicated in a brawl between the policemen and the students of Padua, he was compelled to leave that city, and betook himself to Venice. His adventures there are described in his memoirs, and reveal the frivolous character of the Venetian society of those days. Having become notorious for his profligacy, he was finally thrown into the dungeon of Santo Andrea, but effected his escape, and, after wandering over various towns of Italy and Calabria, succeeded in finding at Morterano a prelate to whom he brought letters of introduction, which his mother had obtained for him, and who recommended him to his friends at Naples. They, in turn, supplied him with letters to Cardinal Acquaviva in Rome, who brought him into personal contact with Pope Benedict XIV., and this circle of acquaintance laid the foundation for his subsequent career. His devotion to the poetical Marchessa Gabrielli, his mental encounters with the literati (for Casanova was a person of culture and varied learning), his conversational triumphs in the high social circles of Rome, were all brought to a sudden close by his connivance in an elopement which gave offence to the marchesa, who requested Cardinal Acquaviva to dismiss Casanova, whom he employed as secretary. Although there was no resisting an order from such a quarter, the cardinal gave him a passport for Venice, and eventually he reached Constantinople, in company with the Venetian ambassador, into whose favor he had insinuated himself with his wonted grace. He was received with great distinction by Cardinal Acquaviva's friend, the pasha of Caramania, alias Count de Bonneval, who introduced him to Yussuf Ali, whose wife fell in love with him, while his daughter Zelmi was offered to him in marriage. He left Constantinople surfeited with presents and money, which he lost in gambling soon after his arrival at Venice in 1745, where he accepted a humble musical employment in the orchestra of the theatre San Samuele, in order to save himself from starvation. Here he fell in with the rich Venetian senator Bragadio, but was soon again compelled to remove to other places in order to escape the hands of justice. After figuring as a magician at Cesena, as a priest at Milan, and in various characters at Mantua, Ferrara, Bologna, Parma, and Venice, he made, on June 1, 1750, his first appearance in Paris. There his reputation had preceded him, and he was received with



great favor. All the *beaux esprits* and dissolute dames of the profligate capital lavished their attentions upon the hero of the thousand and one scandalous tales. The marshal de Richelieu became his bosom friend; the duchess of Chartres doted upon him. After 2 years in Paris, he joined his mother, who was then performing at the theatre of Dresden, and subsequently proceeded to Vienna, where he was received with the same eclat. On his return to his native city, however, July 25, 1755, he was lodged in the terrible dungeons of the council of ten. He gives in his memoirs a most entertaining but highly improbable account of the miraculous skill and audacity which he displayed in again effecting his escape. In Jan. 1757, he reappeared in Paris, where the dungeon episode added considerably to his notoriety. He now tried his hand at politics and financiering, and proposed a lottery, in order to restore the equilibrium of the French exchequer. A meeting was convened to deliberate on the subject. D'Alembert in his capacity of mathematician was invited to attend it. Casanova's persuasive power convinced the most sceptical minds of the infallibility of his project; it was actually adopted, but he did not remain to observe its development, being sent as a kind of government spy to Dunkirk. On his return to Paris, he met at the marchioness of Urff's the famous adventurer, the Count de St. Germain, whom he subsequently found installed at the Hague. After failing in his various industrial speculations at Paris, Casanova went to Holland under the auspices of the duke of Choiseul, to contract a loan for the French government; while strange to say, St. Germain had received the same mission from the hands of Louis XV. himself. The two adventurers were well matched, but as they found the Dutch unwilling to advance any money, Casanova resumed his travels. At Roche he paid his respects to Haller, and at Ferney to Voltaire. At London he met the chevalier d'Eon, and was introduced to George III., but, implicated in a charge of forgery, left the English capital in a singularly hurried manner. At Brunswick the prince of Prussia helped him out of a pecuniary difficulty. His rencontres with St. Germain continued to be frequent and amusing. At Sans Souci he had an audience of Frederic the Great; at St. Petersburg of Catharine II. Prince Adam Czartorysky introduced him to the king of Poland. He returned to Vienna, but Maria Theresa would not receive him, and he departed for Spain. There his career forms one series of scandals and intrigues. In Barcelona he was put in prison, where he beguiled his time by writing a refutation of La Houssaye's "History of Venice." After recovering his liberty, he betook himself in 1768 to Aix, where he met Cagliostro. This meeting of the two great adventurers of the 18th century was full of interest. But Casanova's roving career was now drawing to its close. At a din-

ner of the Venetian ambassador at Paris, he had met Count Waldstein of Bohemia, a good-natured man, and to escape from the dangers of his precarious position, he accepted the office of librarian in the chateau of the Bohemian count, where he spent the remaining 14 years of his life. Casanova wrote a work on Polish history, translated the Iliad, and was the author of an account of his imprisonment, and various other writings. But his literary fame rests upon his *Mémoires*, which he wrote in French during his residence in Bohemia.

CASAS, BARTOLOME DE LAS, called the apostle to the American Indians, born at Seville, in Spain, in 1474, died in Madrid in 1566. His father accompanied Columbus both on his 1st and 2d voyages, and on the latter of these took with him his son, then 19 years of age, who till that time had pursued his studies with brilliant success at Salamanca. Bartolome went also on the 3d and 4th voyages of Columbus. On his return to Spain he determined to become an ecclesiastic, and entered the order of Dominicans, with a view of being employed as a missionary to the Indians. His ordination was deferred till his arrival in 1510 at St. Domingo, where he celebrated the first high mass that had ever been heard from a priest ordained in the new world. Soon after, he was appointed to a curacy in the island of Cuba, and attracted the attention of Governor Velasquez by the influence which his mildness and charity had gained over the native population. He entered with zeal into the interests of the unfortunate Indians oppressed by their European conquerors, and in 1516 returned to Spain to obtain for them measures of redress. Cardinal Ximenes, then regent, sent out 8 Hieronymite monks to correct the abuses complained of, but the efforts of this commission not satisfying the devotion of Las Casas, he soon returned again to Spain for stricter and more efficient regulations. At last, to save the Indians from the complete extermination which threatened them if their toils continued, Las Casas, who had seen the African thriving and robust beneath the sun of Hispaniola, proposed the introduction of negro slaves to labor in mines and on sugar plantations, and relieve the natives. The plan which benevolence had suggested was quickly caught up by the colonists, the traffic in negroes became a lucrative commerce, and the servitude of one race was only exchanged for that of another. Seeing the failure and perversion of his plan, Las Casas formed the bold project of establishing a colony under his own guidance, and obtained from Charles V. the gift of 250 leagues of land for this purpose. This plan too failing after a short trial, in despair he retired for a time to the Dominican convent at St. Domingo. Subsequently he went as missionary and preacher through the provinces of Nicaragua and Guatemala, and into Peru and Mexico; after which he returned to Europe to explain to the emperor the situation of the Indies and to obtain from him new reforms. Charles V., wishing to re-

ward him for his many labors, appointed him to the rich bishopric of Ouzoo. Las Casas preferred to remain poor, and having declined this appointment accepted the next year the bishopric of Chiapa, in Mexico, in a province destitute of metals, pearls, or commerce; and at the age of 70 years, he left Spain for the 8th time. His zeal in behalf of the Indians provoked a hostile attack from Sepulveda, an officer of the Spanish court, who undertook to justify the conduct of the Spaniards. To defend himself Las Casas wrote his work upon the destruction of the Indies, which contained many particulars of cruelties by the colonists, and was translated into several European languages. He met with difficulties in the administration of his bishopric, and having refused the sacraments to those of the colonists who reduced the Indians to slavery, he drew upon himself not only the hostility of the planters but also the disapproval of the church. Abandoned by all, he returned finally to Spain in 1551, after having during 50 years signalized in America his zeal and his virtues. He retired to a cloister, and devoted the remainder of his life to various compositions, one of the most valuable of which, his "General History of the Indies," has never been published.

CASAS GRANDES (Span. great houses), a town of about 4,000 inhabitants in Chihuahua, Mexico, on the Casas Grandes or San Miguel river, 35 m. S. of Llanos, and remarkable for a number of ruins, apparently relics of an aboriginal race. These ruins are found about half a mile from the modern town, partly on the declivity of a small hill, and partly on the plain at its foot. They consist chiefly of the remains of a large edifice, built entirely of adobe, or mud mixed with gravel and formed into blocks 22 inches thick, and about 8 feet long. No stone appears to have been used, and the portions which must have been constructed of wood have entirely crumbled away. The outer walls are almost all prostrate, except at the corners, and were probably only 1 story high; the inner walls are much better preserved, varying in height from 5 to 50 feet, and being in some cases 5 feet thick at the base. The central parts of these, like the exterior walls, have generally fallen, leaving the corners towering above the rest. The portions remaining erect seem to indicate an original height of from 3 to 6 stories, but they are so much washed away that it is impossible to discover where the beams were inserted. The doorways have the tapering form noticed in the ancient structures of Central America and Yucatan, and over them are circular openings in the partition walls. The stairways were probably of wood, and placed on the outside. Clavigero, in his "History of Mexico," tells us that the building, according to popular tradition, was erected by the Mexicans in their peregrination, and that it consisted "of 8 floors, with a terrace above them, and without any entrance to the lower floor. The door for

entrance to the building is on the second floor, so that a scaling ladder is necessary." It is difficult to form a correct idea of the arrangement of the edifice, but its main features seem to have been 8 large structures connected by ranges of corridors or low apartments, and enclosing several court-yards of various dimensions. The extent from N. to S. must have been 800 feet, and from E. to W. about 250 feet. A range of narrow rooms, lighted by circular openings near the top, and having pens or enclosures 8 or 4 feet high in one corner, supposed to be granaries, extends along one of the main walls. Many of the apartments are very large, and some of the enclosures are too vast ever to have been covered by a roof. About 200 feet W. of the main building are 8 mounds of loose stones, which may have been burial places, and 200 feet W. of these are the remains of a building, 1 story high and 150 feet square, consisting of a number of apartments ranged around a square court. For some distance S. the plain is covered with traces of old buildings, the nature of which cannot now be determined, and for 20 leagues along the Casas Grandes and Llanos rivers are found artificial mounds from which have been dug up stone axes, corn-grinders, and various articles of pottery, such as pipes, jars, pitchers, &c., of a texture far superior to that made by the Mexicans of the present day, and generally ornamented with angular figures of blue, red, brown, and black, on a red or white ground. The best specimens command a high price in Chihuahua and neighboring towns.—On the summit of a mountain, about 10 miles from the ruins above described, are the remains of an ancient stone fortress, attributed to the same people who built the Casas Grandes, and probably intended as a lookout.—On the Salinas and Gila rivers, in the country of the Pimo and Coco Maricopa Indians, New Mexico, are ruins of like character and evidently identical origin, to which the same name is usually applied. The Indians call all such ruins "Casas de Montezuma." Of those on the Salinas little remains but shapeless heaps of rubbish, broken pottery, and the traces of several irrigating canals. On the Gila, however, there are 8 distinct buildings, all enclosed within a space of 150 yards. The largest measures 50 by 40 feet, and at a distance looks not unlike a square castle, with a tower rising from the centre. The southern wall is badly rent and crumbled, but the other 3 are nearly perfect, and are roughly plastered over on the outside, and hard-finished inside with a composition of adobe. The material of which they are constructed is the same as that used in the Casas Grandes of Chihuahua. The walls are perpendicular within, but their exterior face tapers in a curve toward the top. One of them is covered with rude figures. The ends of the beams, which denote by their charred appearance that the building was destroyed by fire, are deeply sunk in the walls, and show 3 stories now standing. The lower

floor is divided into 5 apartments. There is an entrance on each of the 4 sides, but there are no windows except on the W. side, and no traces of an interior stairway. The other 2 buildings are much smaller, and one of them was perhaps merely a watch-tower. Both are badly ruined. About 200 yards distant is a circular enclosure, from 80 to 100 yards in circumference, probably intended for cattle. For miles around the plain is strewn with fragments of pottery.—The origin of these ruins is a subject of doubt. They were seen nearly in their present state by the early explorers of the country, and the Indians then assigned them an age of no less than 500 years. Mr. Squier supposes them to have been the work of the aboriginal race of the Moquis.

CASATI, GABRILO, count, president of the provisional government of Lombardy in 1848, born in Milan, Aug. 2, 1798, distinguished himself during the revolution by his patriotism and moderation. Advocating the union of Lombardy and Sardinia, he officiated from March to July 25, 1848, as one of the ministers of Charles Albert, and subsequently he presided over the Lombard *consulta* at Turin, until 1849, when Lombardy came again under the sway of Austria.

CASATI, PAOLO, an Italian Jesuit, born at Piacenza in 1617, died in Parma, Dec. 22, 1707, celebrated for having been the means of converting Christina of Sweden to the faith of Rome, and for his proficiency in mathematics and theology, of which sciences he was professor.

CASAUBON, ISAAC, a Calvinistic theologian and critic, born in Geneva, Feb. 8, 1559, died in London, July 1, 1614. His father was a French Protestant minister, and sent him at the age of 19 to Geneva to study Greek, where he soon so distinguished himself as a linguist, that on the chair of Greek becoming vacant in 1582, he was appointed to it, though only 23 years of age. This post he occupied for 14 years. Meanwhile he married Florence, the daughter of Henry Stephens, the celebrated printer and publisher, by whom eventually he had 20 children. Some domestic difficulty with his father-in-law, or the financial embarrassments in which he was involved by being surety for a friend, led him in 1597 to remove to the chair of Greek and belles-lettres in the university of Montpellier. Two years afterward, at the solicitation of Henry IV., he went to Paris to take a similar professorship in the university of France. But the jealousy of the Catholic party made the measure impolitic, and Henry finally appointed a Catholic to the chair, and made Casaubon royal librarian, with a salary of 400 francs per annum. At the conference of Fontainebleau (May 4, 1600), Henry constituted him one of the Protestant judges. The Catholic party predicted that Casaubon would finally renounce his Protestantism; but he died in the Protestant communion, though there is no doubt he was sometimes wavering in his faith. Chagrined that his Protestant reputation was thus

impaired, Casaubon determined to leave France, and therefore availing himself of the occasion of Henry's death to get leave of absence from the queen, he accompanied Sir Henry Wotton to England. He was received with distinction, made prebendary of Canterbury, and some say also of Westminster, and received a pension of £200, which he lived 8 years to enjoy. He was buried in Westminster abbey. To the end of his life he spoke Latin as well as he did his mother tongue, and was the most critical Greek scholar of his age. His works are mostly philological and critical, many of them being annotated editions of the classics.

CASAUBON, MÆRO, an English divine, son of the preceding, born at Geneva, Aug. 14, 1599, died in Somersetshire, July 14, 1671. He accompanied his father to England; was appointed to the cure of Bleadon in 1624, and 4 years afterward was made prebendary of Canterbury, and rector of Ickham. He received the degree of D. D. at Oxford, 1636. Through his attachment to the Stuarts he lost both property and preferments during the protectorate. Cromwell, perceiving his talents, made frequent efforts to win him over to the cause of the commonwealth; among which was a solicitation to write a history of the war. Christina, queen of Sweden, offered him the superintendency of all the Swedish universities, but he persisted in living in retirement in England until the accession of Charles II., when his ecclesiastical preferments were all restored. He published in his lifetime 2 vindications of his father from the aspersions of his enemies. He believed in the existence of witches and familiar spirits, a faith which he endeavored to defend in a work entitled "Credulity and Incredulity."

CASCA, PUBLIUS SERVILIUS, one of the conspirators against the life of Julius Cæsar. He was not a person, otherwise, of much note, and it is even doubtful whether his name would ever have been recorded in history, had it not been for his complicity in this deed. He had been attached to the Pompeian party, and had, like many others of the dictator's slayers, submitted himself to Cæsar after the battle of Pharsalia, and received a free pardon. It is stated by Plutarch, in his life of Cæsar, that, when Tullius Cimber, according to the preconcerted plan, gave the signal for the assassination by dropping the fold of his toga from his shoulder, Casca struck the dictator on the back of the neck with a short sword, or dagger, but failed to inflict either a deep or deadly wound, being under the influence of agitation, if not of fear, when delivering the blow. Cæsar, on feeling the stroke, turned round, it is said, abruptly, and caught the assassin by the arm, crying out in Latin, "What dost thou, villain Casca?" when Casca calling to his confederates in Greek, "Help, brothers!" the others rallied to his assistance, and completed the bloody deed. Of so small celebrity is this person, but for his share in this conspiracy, that history has not recorded the fate which befell him.

**CASCADE RANGE**, a chain of mountains in the W. part of Oregon, forming a continuation of the Sierra Nevada of California. It lies about 100 m. from the Pacific, and runs in general nearly N. and S. Its highest summits vary in elevation from 10,000 to 17,900 feet. The latter is the altitude of Mt. St. Elias, in Russian America, generally supposed to be the highest land in North America. The name of this chain is derived from the cascades of the Columbia, which are formed where that river breaks through the Cascade range.

**CASCARILLA** (Span. *cascara*, bark), is obtained from that species of oroton called *oroton eleutheria*, a small tree or shrub which grows wild in the West Indies and Bahama islands. It has a spicy, bitter taste, and is used as a tonic. When burnt, it emits an odor so agreeable, that smokers have sometimes mixed a small quantity of it with their tobacco, but it is very injurious when thus employed.

**CASCO BAY**, on the coast of Maine, lying between the 2 headlands, 20 m. apart, of Cape Elizabeth and Cape Small Point. It contains 865 small islands, which have become a favorite resort during the summer season.

**CASE**, in grammar, is the inflection or change of termination which a noun receives, in order to express various relations to other words in a sentence. The name is derived from the Latin *casus*, a fall, thus indicating a falling off from the original state of the word. This inflection of nouns was common to the ancient languages, but many modern languages have renounced it. The relations which the Greeks and Romans expressed by changes of termination are expressed among the moderns by prepositions, or by a simple change in the order of words. In the English language, and those of the continent formed from the Latin, only the pronouns are changed in form according to the relations which they express. Those languages which admit of cases do not all have the same number. The Latins had 6, the Greeks 5, and the Arabs 3, and prepositions were resorted to to express relations which had no case appropriated to them.

**CASE, ACTION ON THE, OR TRESPASS ON THE**, in law, a form of personal action, first used in the reign of Edward III., as a remedy for injuries to which the forms then in vogue were not adapted, and receiving its name from the fact that the whole case of the plaintiff was set forth in the original writ. It is so comprehensive in its scope as to lie wherever damages are claimed to person or property, for which no other form of action affords a remedy. This, which may be called a natural species of action, in contradistinction from those which are of a more technical character, is retained wherever the practice is simplified, and forms the basis of the rules governing the single form of action allowed by the codes of New York and several other states.

**CASE-HARDENING**, a process of hardening the surface of small iron articles, by con-

verting this portion of them into steel. For this purpose they are placed in an iron case, together with animal or vegetable charcoal, and subjected to the process of cementation. The carbon absorbed does not, in the short time allowed for the operation, penetrate beneath the surface. From 2 to 8 hours is the usual time that the articles are exposed to a dull red heat; they are then taken out of the burnt bone-dust, or other carbonaceous substance, and further hardened by quenching them in oil or cold water. Sometimes they are left to cool in the case, and are afterward tempered. Prussiate of potash has in various ways been found a very useful material for affording its carbon to iron for producing steel. Being a combination of two atoms of carbon and one of nitrogen with one of potash, it offers no solid residue that interferes with the progress of the chemical change, or impairs the quality of the steel. In case-hardening, it is sprinkled or rubbed upon the iron heated to dull red, and this, after being put in the fire for a few minutes, is taken out and tempered in water. The process is a convenient one where small articles are to be exposed to much wear, these being easily made of soft iron, and then externally hardened. It is also conveniently applied to give a good surface to small articles which are desired to receive the high polish of which steel is susceptible.

**CASE SHOT, or CANISTER SHOT**, consists of a number of wrought-iron balls, packed in a tin canister of a cylindrical shape. The balls for field service are regularly deposited in layers, but for most kinds of siege and naval ordnance they are merely thrown into the case until it is filled, when the lid is soldered on. Between the bottom of the canister and the charge a wooden bottom is inserted. The weights of the balls vary with the different kinds of ordnance, and the regulations of each service. The English have, for their heavy naval guns, balls from 8 oz. to 8 lbs.; for their 9-pound field-gun, 1½ oz. and 5 oz. balls, of which respectively 126 and 41 make up a canister for one discharge. The Prussians use 41 balls, each weighing ⅓ of the weight of the corresponding round shot. The French had up to 1854 nearly the same system; how they may have altered it since the introduction of the new howitzer gun, we are unable to tell. For siege and garrison artillery, the balls are sometimes arranged round a spindle projecting from the wooden bottom, either in a bag in the shape of a grape (whence the name grape shot), or in regular layers with round wooden or iron plates between each layer, the whole covered over with a canvas bag.—The most recently introduced kind is the spherical case shot, commonly called from their inventor, the British general Shrapnell, shrapnell shells. They consist of a thin cast-iron shell (from ¼ to ½ inch thickness of iron), with a diaphragm or partition in the middle. The lower compartment is destined to receive a bursting charge, the upper one contains leaden musket balls. A fuse is inserted containing a carefully

prepared composition, the accuracy of whose burning off can be depended upon. A composition is run between the balls, so as to prevent them from shaking. When used in the field, the fuse is cut off to the length required for the distance of the enemy, and inserted into the shell. At from 50 to 70 yards from the enemy the fuse is burnt to the bottom, and explodes the shell, scattering the bullets toward the enemy precisely as if common case shot had been fired on the spot where the shell exploded. The precision of the fuses at present attained in several services is very great, and thus this new projectile enables the gunner to obtain the exact effect of grape at ranges where formerly round shot only could be used. The common case is most destructive up to 200 yards, but may be used up to 500 yards; its effect against advancing lines of infantry or cavalry at close quarters is terrible; against skirmishers it is of little use; against columns round shot is oftener applicable. The spherical case, on the other hand, is most effective at from 600 to 1,400 yards, and with a proper elevation and a long fuse, may be launched at still greater ranges with probability of effect. From its explosion near the enemy, by which the hailstorm of bullets is kept close together, it may successfully be used against troops in almost any but the skirmishing formation. After the introduction of the spherical case shot, it was adopted in almost all European services as soon as a proper fuse composition was invented by each, this forming the only difficulty; and of the great European powers, France is the only one which has not yet succeeded in this particular. Further experiments, accidents, or bribes will, however, no doubt soon place this power in possession of the secret.

**CASEMATES** (Sp. *casa*, a house, and *matar*, to destroy), in fortification, vaulted chambers under the main wall of a bastion with embrasures for guns. Though generally considered by writers as only protected batteries, they have in the United States been used as subterranean barracks even in time of peace. They must be bomb-proof, and distributed along the faces and flanks of the bastion to serve as chambers to the garrison in case of bombardment, but a regard for the health of troops has prevented all armies except the American from using them as barracks, except when compelled by the exigencies of war.

**CASERTA**, a town of Naples, capital of the province of Terra di Lavoro, situated in a fertile plain on the railway line from Naples to Capua, 17 m. N. E. of the former, and 6 m. S. E. of the latter city; pop. about 25,000. It has numerous churches, a convent, a military school and excellent barracks, and is noted for its magnificent royal palace and aqueduct, both constructed by Vanvitelli for Charles III. The palace contains a chapel, and a large theatre, adorned with columns from an ancient temple of Serapis. The gardens are supplied with water from a distance of 27 miles by means of a fine aqueduct.

The principal branch of industry consists in the manufacture of silks.—On the hills behind Caserta is **CASERTA VERGOLA**, a fortified town, the seat of a bishop and of a seminary, containing a splendid cathedral and other churches; it was once a place of great importance, but has been eclipsed since the foundation of Caserta. Both towns were founded by the Lombards.

**CASES, COUNT DE.** See **LAS CASES**.

**CASEY**, a central co. of Ky., area 850 sq. m.; pop. in 1850, 6,556, of whom 684 were slaves. It is traversed by Green river and the Rolling fork of Salt river. The surface is hilly and broken. The productions in 1850 were 511,416 bush. of corn, 9,041 of wheat, 81,797 of oats, 74,600 lbs. of tobacco, 24,422 of wool, and 27,197 of flax. There were 14 churches, and 1,156 pupils attending public schools. The county was organized in 1806, and named in honor of Col. Wm. Casey, one of the first settlers of Ky. Capital, Liberty.

**CASHAN**, or **KASHAN**, an ancient and flourishing city of Persia, in the province of Irak-Ajema, situated in a rocky plain, about 90 m. N. of Ispahan on the route to Teheran; lat. 34° N., long. 51° 20' E.; pop. about 30,000. It contains a royal palace, 80 mosques, 13 baths, and numerous bazaars. Beautiful silks, shawls, cotton cloths, and carpets are manufactured here; copper utensils are also made here, and the workers in gold and silver are noted for their skill. It has considerable trade in fruits.

**CASHEL** (anc. *Carsiol*, the "habitation in the rock"), a city and parliamentary borough of Ireland, co. Tipperary, with a station on the Great Southern and Western railway, 76 m. S. W. of Dublin; pop. in 1851, 4,798. Part of it is well built, but it has a poverty-stricken appearance, is destitute of manufactures, and has been on the decline for several years. It contains an elegant cathedral and parish church, a nunnery, chapels, schools, barracks, a hospital, an infirmary, and court-houses. Its most interesting object is the famous "rock of Cashel," which rises abruptly from the plain outside of the city, and is crowned with the finest collection of ruins in Ireland. These consist of a round tower, a Gothic cathedral built about the 12th century, a monastery and a castle of about the same date, and a chapel of hewn stone, with a roof of the same material, built in the Saxon and Norman styles of architecture, and still showing marks of extraordinary beauty. These remains, which are visible at a great distance, are all within an enclosed area. At the foot of the rock are the ruins of Hore abbey and of a Dominican priory. Donald O'Brien, king of Limerick, and his nobles took the oath of allegiance to Henry II. here in 1172. Cashel was the ancient residence of the sovereigns of Munster, and is often dignified by the title of "the city of kings." In the civil wars following the rebellion of 1641, it was taken by Lord Inchiquin, and afterward by Cromwell.

**CASHMERE**, **CASHMIR**, **KASHMIR**, **KASHMIR**, **KASCHMIR**, or **KACHMIR**, a kingdom in the

N. W. part of Hindostan, almost enclosed by ranges of the Himalayas, which separate it from Thibet on the N. and E. from the British districts of Spiti and Lahoul and the Panjaub on the S., and from the Panjaub and Huzareh country on the W.; area estimated at 25,000 sq. m.; pop. at 750,000. It extends from lat.  $82^{\circ} 17'$  to  $86^{\circ}$  N., and from long.  $73^{\circ} 20'$  to  $79^{\circ} 40'$  E., and includes the famous vale of Cashmere, the provinces of Jamu, Bult or Iskardoh, Ladakh, Ohamba, and some others.—The valley of Cashmere is of irregular oval form, shut in by lofty mountains, the summits of some of which are covered with perpetual snow. It is from 5,500 to 6,000 feet above the sea, and the alluvial plain which forms its bottom is 70 m. long, 40 m. wide, and about 2,000 sq. m. in superficial extent. The area of the whole valley is 4,500 sq. m. It is entered by several passes, 11 of which are practicable for horses. The highest of these, that of the Pir Panjal, has an elevation of 12,500 feet. The principal river is the Jhyllum, which receives numerous tributaries from the mountains, and flows through the Baramula pass into the Panjaub. Several small lakes are scattered through the valley. Thus abundantly irrigated, and fertilized by the rains which, unlike those of most parts of India, are light, the soil attains an extraordinary fertility, yielding returns of from 80 to 60 fold of the principal crops. Rice, the common food of the inhabitants, is the staple; wheat, barley, buckwheat, maize, and tobacco, are cultivated to some extent; cotton is found to flourish; esculent vegetables, kitchen herbs, and saffron are abundant; and the lakes supply the poorer classes with a nutritious though insipid article of food in the *singhara* or water nut, the seed of the *trapa bispinosa*, which is ground into flour, roasted, boiled, or eaten raw. About 60,000 tons of this nut are annually taken from the Wullur lake. Among the fruits are the apple, pear, plum, apricot, cherry, and grape. Flowers of rare beauty, particularly the rose, which is highly cultivated, load the air with their perfume. Many of the forest trees attain a vast size, and towering among them are the Himalayan cedar, the chunar, the poplar, the lime, and the wild chestnut. The willow, maple, birch, alder, pine, and white thorn are common. Every village has its grove of chunars and poplars, planted centuries ago by order of the Mogul emperors, and now forming one of the richest ornaments of the valley. The most valuable minerals are iron and limestone, both of which are abundant; copper, plumbago, and lead are also known to exist. The climate is salubrious, and milder than in many parts of India, but the stillness of the midsummer air gives the heat an oppressiveness scarcely to be expected from the range of the thermometer ( $80^{\circ}$  to  $85^{\circ}$  at noon in the shade), and the winter is sometimes severely cold. Snow falls abundantly. The bulk of the inhabitants are Mohammedans, speaking a Sanscrit dialect, with

a large admixture of Persian, in which latter tongue the records and correspondence of the government are written. There are 2 prominent sects, the Soonnites, and the followers of Ali; the former being the more numerous and regarded as orthodox. The Cashmerians are preëminent among Indian nations by their physical perfections. The men are tall, robust, well formed, and industrious; the women famous for their beauty and fine complexions. They are a gay people, fond of pleasure, literature, and poetry, but are represented by many travellers as peerless in cunning and avarice, and notoriously addicted to lying. They appear to be of Hindoo origin. At the beginning of the present century the population of the valley was 800,000, which has been reduced by pestilence, famine, and earthquakes to 200,000. In 1828 an earthquake destroyed 1,200 persons; 2 months later the cholera carried off 100,000 in 40 days; and in 1833 famine and pestilence committed still more frightful ravages. The chief towns are Serinagur or Cashmere, the capital, Islamabad, Shu-peyon, Pampur, and Sopur. The principal manufactures are the celebrated Cashmere shawls, gun and pistol barrels, paper, lacquered ware, and attar of roses.—The country was conquered by the Mogul emperor Akbar in 1586, by the Afghans in 1752, and by the Sikhs in 1819. It was included in the territory transferred by the latter to the British under the treaty of Lahore in 1846, and was immediately sold by its new owners to its present holder, Gholab Sing, for the sum of £750,000.

CASHMERE, by the French manufacturers called *Cachemire*, a textile fabric made of the fine wool of the Thibet goat. This animal is characterized by long, silky, straight, white hair, large ears, horns not spirally twisted, and limbs slender and cleanly formed. The wool had long been used by the natives of Cashmere in producing the elegant shawls with which the name of their kingdom was associated, before these became known in western Europe. It was not, indeed, until the campaign of the French in Egypt, when the general-in-chief of the army sent one to Paris, that the French public had an opportunity of admiring the wonderful delicacy of the fabric, the softness of the material, the harmony of colors, novelty of the work, and strangeness of the design. Its arrival is said to have created an immense sensation, and measures were immediately set on foot to introduce the manufacture into France.—In Cashmere the wool is received from Thibet and Tartary, and, after being bleached, is spun and dyed of various colors. The weavers, employed by the merchants at the rate of from 1 to 4 pice (nearly 8 to 12 cts.) a day, receive the yarns, and in their shops, or at looms in their own houses, proceed to weave them after the patterns ordered. Each loom is estimated to make an average yearly production of 5 shawls; but a single one of the finest shawls sometimes occupies the work of a whole shop, keeping 2 to 4 persons constantly engaged about it for an

entire year. The total number of looms in Cashmere, it is believed, is about 16,000. The shawls they produce are the great article of export of the country. They are sent to various parts of Asia, and in India they were first made known to the English. The process of weaving the shawls with variegated figures is conducted without the shuttle, each colored yarn of the woof being worked upon the warp with its separate wooden needle; and, as the work goes on exceedingly slowly, it is customary to divide it among several looms, and then join the pieces together. This is so skilfully done that the seams are not detected. As the pattern is worked, the right side is the under one upon the frame, and is not seen by those who work it upon the upper or rough side. The shawls are made single and in pairs, either square or long. The former measure from 63 to 72 inches on a side, the latter 126 inches by 54. To work a single long shawl without a seam, and of the finest thread in the warp as well as the woof, in the most elaborate pattern and exquisite colors, would require the labor of about 8 years; and as in this time the colors are likely to change, and the fabric to receive injury from worms or otherwise, such shawls are rarely attempted. The fine shawls are more usually made upon 12 different looms for a pair, and when completed, at the expiration of 6 or 7 months, are worth in Cashmere from 1,200 to 2,000 rupees, or from about \$500 to \$800. The most expensive shawls sold in London or Paris are stated to have brought about \$2,000.—In the year 1819, M. Jaubert, under the auspices of the French government and at the expense of M. Ternaux, succeeded in bringing some of the goats to France. These were a cross between the original Thibet and a Tartar variety, and were of a comparatively hardy constitution. They were placed by M. Ternaux at his villa of Saint Ouen, near Paris, where they gradually increased in numbers, so that 4 were afterward obtained by Mr. Taylor, of Essex in England; and from these in 1833 the number had increased to 50. The down they furnished proved, however, to be too little in quantity to be of value; but by crossing the breed with the Angora goat, the downy product was largely increased, and it proved, moreover, to be of a long, silky quality, admirably adapted for shawls. With the wool obtained from these goats and that imported from Thibet through Kasan, capital of a Russian province on the Volga, the French maintain the extensive manufactures they have established of shawls made principally of this material. To imitate the genuine cashmere successfully greatly taxed the skill of their manufacturers; and though in Paris shawls have been produced like those imported, it is found more profitable to limit the manufacture to somewhat similar but more easily woven fabrics. The real cashmere is made by a very complicated process, which requires not only as many yarns in the weft as there are colors in the pattern, but also as many little

shuttles or pirns (like those used in embroidery), filled with these yarns, as there are to be colors repeated in the breadth of the piece. By the skilful use of these the figures, however complicated with variety of colors, are repeated precisely alike on both sides. This the French have also done in their imitations of real cashmere. But the principal articles of this sort they manufacture are the so-called French cashmere shawls, in which the 2 sides are not alike; but on one side they have the exact appearance of the cashmere. They are made in Paris by the use of the draw-loom, or, which is better, of the jacquard, with as many shuttles as colors in the design. These are thrown across the warp as required; but being most of them brought into play only at intervals, the threads remain floating loose on the back, and are at last trimmed off. Their felting property prevents their coming out, but the ends continue visible on the wrong side. The process saves labor, but wastes material; the waste is, however, worked up in other fabrics. In the Paris-made articles the warp and weft are both of pure cashmere down. The shawls are mostly square, of from 71 to 76½ inches on a side, and of the value of 220 to 500 francs. They have seldom less than 8 colors, commonly 10 or 11, and sometimes 14 and 15. The long shawls in pure cashmere ought to measure from 59 to 63 inches in breadth, and from 14½ to 149½ inches in length. Their price is from 300 to 700 francs. But there are also 2 varieties made at Paris, which differ somewhat from the above. One, called the Hindoo cashmere, has the warp in silk, and the rest is pure cashmere down. One or two colors less are employed, which reduces the price to 180, and from this to 120 francs. The other is called the Hindoo wool shawl. In this the warp is also silk, and the rest is of wool more or less fine in quality. This article is much more largely required than the others. The value of its annual production is reckoned to be from 12 to 15 millions of francs. Lyons leaves to Paris the manufacture of the pure cashmere goods, but successfully competes in the production of the pure wool Hindoo article. The wool employed rivals in softness and fineness that of the Cashmere goat. But the most important of the fabrics of Lyons is the so-called Thibet shawl, made of a mixture of wool and floss silk. In the manufacture of these and other varieties of shawls it is estimated that there are in Lyons 4,000 looms, each of which when in operation requires the attention of 3 persons. Nismes and Rheims have also each a factory which produce similar articles at great economy and at lower prices than those of Lyons and Paris. This important branch of industry is altogether the direct result of the efforts made to imitate the Cashmere shawls, first known in Paris during the present century.—Dr. J. B. Davis, of Columbia, S. C., while employed, a few years since, by the Turkish government, in experimenting on the growth of cotton in the Ottoman empire, succeeded in

securing 11 pure breed Thibet goats, which he brought to his native state, from whence the goat has been introduced into Tennessee, where it is said to thrive. In 1857 the wool raised in Tennessee brought \$8 50 per lb., the purchasers in New York proposing to send it to Scotland, to have it manufactured there into shawls.

CASHNA, a country of interior Africa, lying between Haussa and Bornoo, and separated from Meli by the Niger. Its capital is of the same name, and is situated in lat. 18° 10' N., and long. 5° 50' E. Cashna is a mountainous but very fertile district, and produces abundantly barley, millet, senna, and the grape. It maintains a commerce with north Africa, by a caravan which, starting from Fezzan, and passing Assuda, Ganatt, and Agadez, reaches in 60 days the capital of Cashna, and in 5 days more the river Niger, and thence proceeds to the S. even as far as the gold coast. Its principal exports are gold-dust, cotton, slaves, and dyed goat-skins; it imports woollen, cutlery, mirrors, and toys.

CASIMIR, or KASIMIERZ, the name of several monarchs of Poland. I. The son of Mieczyslaw II., and of Rixa, a German princess (1040—1058). After the death of his father, his mother ruled the country as regent; but the favors she bestowed upon her own countrymen, and their ill conduct, caused an outbreak of national hatred, before which Rixa fled to Germany. Casimir followed her. Poland, left without a ruler, became a scene of the wildest anarchy and lawlessness; the lately established Christian church had also to suffer greatly from pagan persecutions. Profiting by this state of affairs, the Bohemians made an incursion into Poland, and advanced as far as Gnesen, whence they carried away the body of St. Adalbert, (Sty Wojciech), or, according to the relation of the priests of the place, the cunningly substituted body of another man. Casimir was now recalled by his countrymen from Germany, where he was living in quiet retirement occupied with exercises of religious piety, which gained him the surname of "the monk." Slightly assisted by Henry III. of Germany, he regained his authority, and restored Christianity and a regular administration of justice, conquered Masovia, gained Breslau and other places from the Bohemians, and was honored with the title of Restorer of Poland. His wife was Dobrogniewa, sister of Jaroslav, the grand-prince of Kiev; his successor Boleslaw II. the Bold, his eldest son. II. THE JUST, born 1138, died 1194. He was the youngest of the 4 sons of Boleslaw III., or Crooked Mouth, among whom this monarch divided Poland, and reigned over the reunited country after the expulsion of Mieczyslaw III. the Old (1177). He is greatly renowned for his personal virtues, as well as for the introduction of laws defending the peasants against the nobles and officers of the court. Under him the Polish senate was first organized, consisting of bishops, palatines, and castellans. He made successful expeditions to Volhynia, Halicz, and Lithuania. III. THE

GREAT, born 1809, died 1870. He was the son and successor of Wladyslaw Lokietek (the Short), who had restored the union and the power of the long distracted kingdom. While still a prince, Casimir displayed his talents as governor of Great Poland, as well as his bravery in the wars of his father against the order of Teutonic knights, but also exhibited habits of great dissoluteness. In 1388 his father bequeathed him his throne, with the advice not to enter into any treaty with the Teutonic knights; but the inclinations of the young king were for peace, and he soon concluded a treaty, in which the knights ceded the districts of Kujaw and Dobrzyn, but gained Pomerania. To secure peace from the kings of Bohemia, he sacrificed to them the rich and valuable province of Silesia for the resignation of their claims and pretensions on Poland. Dissatisfied with his acts, the warlike nation sought redress for their grievances from the Teutonic knights at the court of Rome. The pope gave a favorable decision, commanding the knights to restore all the Polish districts, and to rebuild the destroyed churches; but the knights, trusting in their swords and in the aid of the emperor, scorned the bull, and maintained their conquest. In the meanwhile Casimir had strengthened his reign by salutary and peaceful reforms, as well as by the erection of numerous castles and fortifications. The adoption of his nephew, Lewis, son of Charles Robert, king of Hungary, as successor to the throne of Poland, confirmed by the assembly of the nation at Cracow (1389), secured the alliance with Hungary. In 1340 the death of Boleslaw of Masovia and Halicz, who died without progeny, offered a favorable opportunity for the annexation of Red Russia, which was easily executed in two successful campaigns. A consequence of these was an incursion of the Tartars (1341), at the summons of certain Russian princes, who pretended to have been wronged. Casimir fortified and defended the line of the Vistula, and by the speedy retreat of the invaders, Poland happily escaped total destruction. In 1344 some difficulties, caused by the dukes of Silesia, brought about a short war with the king of Bohemia, which was begun by the conquest of Silesia, and ended with the acquisition only of Fraustadt. Subsequently parts of Lithuania, Masovia, and Volhynia were added to Poland. But greater and more glorious were the successes achieved by Casimir in time of peace. The diet of Wislica (1347) sanctioned a double code of laws for Great and Little Poland, digested by the ablest men of the country, based in part on the ancient statutes of the nation, and in part on the German, or the so-called Magdeburgian institutions, according to which the commercial cities were governed. The rights of both nobles and peasants were determined and secured, and so great was the zeal of Casimir in defence of the latter against the former, that he was called the king of the peasants (*król kmiotków*). No less great was his ardor and activity in promot-



ing industry, commerce, arts, and sciences (particularly proved by the foundation of the university of Cracow), and in adorning and strengthening the country with buildings for public use and defence; and thus he deserved the remark of an ancient historian, that he inherited Poland of wood and left it of stone. \*Agriculture, industry, and general wealth gradually increased under Casimir; and the riches, pomp, and liberality of the state were displayed in an astonishing way on the occasion of the marriage of his granddaughter with Charles IV., emperor of Germany, which was celebrated for 20 days at Cracow, in the presence of Lewis king of Hungary, Peter king of Cyprus, Waldemar king of Denmark, and a great number of dukes and other distinguished guests. But his reign had also its shades: unhappy marriages; love affairs condemned by the people and the church; an excommunication by the archbishop of Cracow; a deadly revenge taken on its innocent announcer; the subsequent humiliation of the king by the pope; and a great defeat by the Wallachians. A fall from a horse ended the life of the most popular monarch of Poland.—Among the objects of the love of Casimir was the Jewess Esther, the heroine of so many romances, by whom he had several children, and who is supposed to have contributed greatly to the humane protection which he and his laws bestowed on her people in Poland, in the time of most barbarous persecutions in other parts of Europe. IV. Born 1427, died at Grodno 1492, was the son of Wladyslaw Jagiello, and brother and successor of Wladyslaw III., called Warnenczyk, from his defeat and death at Varna in 1444. Casimir was at that time grand duke of Lithuania, and accepted, but hesitatingly, the call to the throne of Poland. His long reign is remarkable for several diets held at Lublin, Piotrkow, etc.; for a successful war of 14 years against the Teutonic knights, terminated in 1466 by the peace of Thorn, which gave to Poland the western part of Prussia and the suzerainty of the eastern, and for the subsequent long period of general prosperity, luxury, and relaxation of the national spirit. The introduction of the Latin language into the schools and public life of Poland dates particularly from this reign. Of the 6 sons of Casimir, one was elected king of Bohemia and Hungary, three, John Albert, Alexander, and Sigismund, succeeded each other on the throne of Poland, one became a cardinal and one a saint. V. See JOHN CASIMIR.

CASINO, or MONTE CASINO, a celebrated Benedictine abbey, established by St. Benedict in 529, upon the mountain of the same name, in the Neapolitan province Terra di Lavoro, rising over the town of San Germano, the ancient Casinum, in former times the seat of a famous castle, and of a temple of Apollo. The beauty of the spot attracted many visitors, and the medical skill of the friars many invalids to the abbey, while at the same time pilgrims resorted there from all parts of the world, as the Benedictines were deemed to possess miraculous

balms derived from Mount Zion. In our times the abbey presents many intellectual attractions as its inmates have established a press and published a variety of valuable works. The librarian, Luigi Tosti, published in 1841 the *Archivio Casinese*, and in 1841-'48 *Storia della Badia di Monte Casino*.

CASPIAN SEA (called by the Russians Sea of Astrakhan, anc. *Mare Caspium* or *Hyrcanum*; Gr. *Kasria θαλασσα*), an inland sea lying between Europe and Asia, lat. 35° 55' to 47° 30' N., long. 46° 48' to 55° 25' E. Greatest length from N. to S., 760 m.; greatest breadth, 270 m.; average breadth about 200 m. Area, 140,000 sq. m. It is bounded N. E., N. and N. W. by Russia, S. and S. W. by Persia, and E. by Toorkistan. It has few bays, the largest being on the Asiatic side, Emba bay, Mertvoi gulf, Karasoo inlet, Manghishlak gulf, bay of Alexander, Kenderlinsk gulf, Koolee Deris bay, and Balkhan bay; on the European side, Kizil Agatch and Kooma gulfs, and several smaller indentations. At the southern extremity of the sea is Astrabad bay, and from this point to Emba bay at the north-eastern end, the eastern shore extends nearly in a straight line. The Emba river, which enters the bay of its own name by several mouths, and the Aurak, are almost the only considerable rivers which it receives on this side, though the Oxus, or Amoo, which now enters the sea of Aral, is supposed to have once flowed into it. On the N. and W. its basin is far more extensive. The Ural, the Volga, the Terek, and the Koor here pour their waters into it, and most of them are constantly bringing accumulations of sand, which, in some instances, as at the mouth of the Volga, form little islands, projecting several miles from the coast. The shores are thus rendered difficult of access, and in the northern and north-eastern parts the depth of water for 2 or 3 m. from land is only a few feet. All this part of the coast, as far S. W. as the Soolak, is of alluvial formation; thence S. to the peninsula of Apscheron it is of tertiary formation, broken by occasional carboniferous strata; and from Apscheron around the S. extremity of the sea, the shores are low and sandy, with lofty hills rising in the background. On the E. and S. E. is found a cretaceous subsoil, covered with moving sands; the surface, with the exception of Cape Karagan, being flat. In fact, the coast generally is so low, that most parts are overflowed when the wind sets in strongly from the opposite quarter. Naphtha, or petroleum, is frequently found, particularly on the peninsula of Apscheron and the island of Naphthalia, in the bay of Balkhan. The waters are not so salt as those of the ocean, owing to the immense volume of fresh water poured into the sea by the Volga and other large rivers. They are very deep in some places, but remarkably shallow near the coasts except in the southern part. There are no tides, and the sea has no outlet, the superfluous waters being carried off wholly by evaporation. Extraordinary changes in its level have been noticed,

but never explained; according to native accounts, the surface rises and falls several feet in periods of about 80 years. It has long been known that the level of the Caspian is lower than that of the ocean, and in 1812 an attempt was made by Engelhardt and Parrot to ascertain the difference by a series of levellings and barometrical measurements across the Caucasian isthmus to the Black sea. Measurements were made in 2 places, one of which made the Caspian 348 feet lower than the Black sea, and the other 301 feet lower. A survey made by the Russian government in 1836-'7 proved the difference of level to be 84 feet. Sturgeon, sterlets, belugas, salmon, and seals are taken in this sea in great numbers, giving employment to many thousand persons. Nearly 100,000 seals, 800,000 lbs. of roes, and 20,000 lbs. of isinglass, the produce of 700,000 sturgeons, are taken every year.—We have little knowledge of the ancient commerce of the Caspian. About the middle of the 18th century much of the trade of W. Europe with India passed over it, Astrakhan being then, as now, its chief port. On the seizure of Constantinople by the Turks, commerce was forced into other channels. In 1560 an English company made a fruitless attempt to render it a channel of commerce with Persia and Turkestan. Peter the Great had its coasts explored by Dutch navigators, partly with the view of founding stations for the Indian trade on the Persian seaboard, but his project was not carried out. No Russian conquest was made on the Caspian sea until the time of Catharine II., and it was not until still more recent periods that Russia succeeded in obtaining full control over its trade. The following table presents the shipping movements in its waters during 5 years from 1851 to 1855 inclusive:

	Entrances.	Clearances.
1851.....	227	305
1852.....	273	444
1853.....	169	292
1854.....	181	311
1855.....	303	305
Total .....	1,151	1,779

or an average in 5 years of 230 entrances, and 355 clearances of foreign vessels, beside the many vessels engaged in the coasting trade. The largest class of vessels by which the Caspian sea is navigated, of which there are about 100 sail, carry rarely less than 90 or more than 150 tons, are called *schuyts* by the Russians, and are built of the timber of the boats that bring breadstuffs down the Volga to Astrakhan. Another class of vessels of superior sailing qualities, of which there are about 50, carry from 70 to 140 tons, and are called *rachives*. Beside these 2 classes of vessels, there are a great number of small craft, and a new charter for a Caspian steamboat navigation company was granted by the Russian government in April, 1858. The principal ports are Astrakhan and Bakoo. The Russian fleet in the Caspian sea consists of 4 brigs, 2 steamers, and 7 other vessels; total, 13 vessels.—Dureau-Delamalle's *Géographie physique de la mer*

*noire*, Eichwald's *Reise auf dem Kaspischen Meere und in den Kaukasus*, Hommaire de Hell's *Les steppes de la mer Caspienne*, and the *Beschreibung*, published by Sawitsch and Sabler, giving their survey of the respective elevations of the Black and Caspian seas (St. Petersburg and Leipsic, 1849, in German), contain valuable information on the Caspian sea.

CASORIA, a town of Naples, pop. 7,924, the birth-place of Pietro Martino, the painter. It has 4 churches, and produces quantities of silk.

CASPARI, KARL PAUL, a German commentator on the Old Testament, born Feb. 14, 1814, at Dessau. After studying at Leipsic and Berlin, and graduating in 1844 as licentiate in theology at Königsberg, he became, in 1847, teacher at the university of Christiania. In conjunction with Delitzsch he is publishing "An Exegetical Hand-book of the Prophets of the Old Testament," and "Biblical, Theological, and Apologetic-Critical Studies." To the former work Caspari contributed in 1848 the "Expositions of the Prophet Obadiah," and to the latter work in 1848, "Contributions toward an Introduction to the Book of Isaiah, and the History of the Times of Isaiah." In 1849 he published a treatise on the "Syrio-Ephraimitic War under Jotham and Ahaz," and in 1851 on "Micah and his Book." He is a member of the committee for revision of the Norwegian translation of the Bible. He has published an edition, with a translation, commentary, and glossary, of the *Enchiridion Studiorum* of Boha-eddin; also a *Grammatica Arabica*.

CASQUE, the head-piece or helmet of the ancient Greeks and Romans. The origin of the word is not well ascertained, but is, perhaps, referable to the Latin *cassis*, the term for that species of helmet the basis of which was metal, as opposed to *galea*, the original signification of which is a leathern skull cap; although the words, at a later date, were confounded and used indiscriminately to signify the armor for the head, of whatever form or material. The casques of the ancients were of many forms, from the simple bowl-shaped skull cap, without either peak to shade the face or guard for the neck behind, to the elaborate crested helmet, with cheek-pieces, neck-plate, and visor covering the face of the wearer. The latter appendage was not movable, so that it could be raised or depressed at pleasure, but was a solid portion of the helmet, and was made to cover or expose the features, by thrusting the whole helmet backward or drawing it forward. In the latter case, the crown of the helmet fitted closely on the skull, and the fore part, which protected the whole face, having perforations to correspond with the eyes and a long perpendicular slit extending downward from these, on either side of the nasal, or plate for the defence of the nose, was drawn down to the chin of the wearer, giving complete protection, and concealing the countenance so absolutely that the wearer could not be recognized. In the former

case, the crown was thrust back so far that it projected from the base of the skull behind, with the crest standing out horizontally backward, and the visor, or face-piece, resting flatly on the crown, so as to leave the features entirely exposed. The shape of this helmet and the mode of wearing it are, perhaps, best explained by saying that, in form, it exactly resembled a lady's cottage bonnet; that the ordinary mode of wearing it was the present fashion of putting it quite back off the head; while the mode of guarding the face was what it would be, if the real crown of the bonnet sat flatly on the top of the head, and the fore part were pulled down perpendicularly over the nose. It does not appear that these helmets were ever worn actually in battle, at least not in the second position; although some persons have supposed that the helmet of Aidoneus, which Minerva wore when she mingled in combat with mortals in the Trojan war, and which had the property of rendering its wearer invisible, was of this fashion. They were, however, certainly worn by the gladiators in the later ages of Rome; and specimens were found at Pompeii, something resembling the rudest form of the visored helmet of the 1st and 2d crusades. The ancient casques were ordinarily made of bronze, often of exquisite workmanship, with elaborate sculptures and designs in high relief, especially on the crown or head-piece, the cheek-pieces, *bucculae*, and the cones, or ridges, which supported the crest of waving horsehair. This was often dyed crimson, but sometimes left white or black. The cones were sometimes 3 or 4 in number, and fashioned into the likeness of sphinxes, dragons, or lions. A helmet of Minerva, on a fine antique gem, shows 4 parallel crests, each supported by a prancing centaur. According to Homer, casques were often made of the precious metals, or at least overlaid with them. Steel does not appear to have been in use for the fabric of ancient armor, or, until a comparatively recent period, even for that of offensive weapons. The sword-blades and spear-heads of Homer are all of brass, *χαλκος*, whatever mixture that word represented, probably copper hardened with tin; and it is not until Æschylus wrote that we find steel, *χαλνψ*, and iron, *σιδηρος*, used as synonymous for the sword. The word casque is used poetically in reference to all helmets, even to those of the middle ages, when it is applied to the whole covering of the head taken together without reference to parts, as the cervelliere, avantaille, beaver, and other appendages. The casque of the Roman legionary soldier was of bronze, open, not protecting the face; but it had a peak to cover the brow, another to guard the nape of the neck, cheek-pieces hinged on to the casque and connected by a clasp under the chin, and either a crest or a plume of 3 tall erect, black and scarlet feathers. This was the fashion, as described by Polybius, and in vogue during the Punic wars.

CASS, the name of counties in several of the

United States. I. A. N. W. co. of Ga., area 714 sq. m.; pop. 13,564, of whom 3,400 are slaves. It is drained by the Etowah river, and is remarkably rich in minerals. Gold, copper, lead, iron, titanium, plumbago, marble, and limestone are found in several places. The surface is much diversified, and occupied in part by forests of hickory, pine, elm, and other trees. Wheat, oats, corn, cotton, and fruits are the principal productions of the soil. Near the Etowah river is an artificial mound 75 feet high and 1,114 feet in circuit at the base. It has been opened and found to contain some articles of very ancient earthenware. The county was named in honor of Gen. Lewis Cass. Capital, Cassville. Value of real estate in 1856, \$2,584,010. II. A. N. E. co. of Texas, bordering on Louisiana and Arkansas, bounded N. by Sulphur Fork of Red river, S. by Big Cypress bay and Soda lake; area 1,224 sq. m.; pop. in 1856, 8,652, of whom 8,661 were slaves. The surface is undulating, and partly occupied by uncultivated swamps. The uplands are fertile, and beside furnishing pasturage for numbers of horses and cattle, produced in 1850 1,578 bales of cotton, 167,250 bushels of corn, 45,462 of sweet potatoes, and 56,122 pounds of butter. The public schools numbered 500 pupils. The forests furnish abundance of hard wood, and in the S. W. part of the county are valuable mines of iron. Capital, Jefferson. III. A. S. W. co. of Mich., bordering on Indiana, area 629 sq. m.; pop. 10,907. It has a level surface, pleasantly diversified by a number of small lakes, and occupied by prairie, oak-openings, and dense forests. Iron and limestone are the principal minerals. In 1850 the productions amounted to 418,860 bushels of corn, 160,592 of wheat, 120,246 of oats, 68,020 of potatoes, and 8,905 tons of hay. The crop of corn was larger than in any other part of the state except Oakland co. There were 8 churches, and 3,896 pupils in the public schools. Capital, Cassopolis. IV. A. N. W. co. of Ind., drained by Wabash and Etowah rivers; area 420 sq. m.; pop. 11,021. In the vicinity of the rivers are high bluffs. The rest of the surface is generally flat, and divided between prairies in the N. and forests in the S. part. The productions in 1850 were 397,915 bushels of corn, 107,078 of wheat, 39,674 of oats, and 8,091½ tons of hay. There were 11 churches, 2 newspaper establishments, and 1,795 pupils in the public schools. Capital, Logansport. V. A. W. central co. of Ill.; area 860 sq. m.; pop. in 1855, 8,946, bounded N. W. by Illinois river and N. by the Sangamon, both of which rivers are here navigable by steamboats. The surface is level, and consists of prairies and woodlands. The soil is extremely fertile, and in 1850 produced 1,417,750 bushels of corn, 181,186 of wheat, 150,197 of oats, and 3,885 tons of hay. There were 14 churches, and 1,000 pupils attending public schools. Capital, Beardstown. VI. A. W. co. of Mo., intersected by the middle fork of Grand river; area about 1,000 sq. m.; pop. in 1856, 6,818, of whom 728 were slaves. It was formerly called Van Buren. There

are numerous springs of good water, and several quarries of limestone and sandstone. The surface is moderately uneven and occupied chiefly by fertile prairies. Productions in 1850, 300,976 bushels of corn, 13,524 of wheat, 65,113 of oats, and 1,610 tons of hay. Number of pupils in the public schools, 748. Capital, Harrisonville.

VII. A. S. W. co. of Iowa, recently erected; area 576 sq. m.; pop. in 1856, 815. It is traversed by the Nishnabotona, an affluent of the Missouri river. Comparatively little of the land is under cultivation. The productions in 1856 were 4,186 bushels of wheat, 40,013 of corn, 8,302 of oats, and 13,501 lbs. of butter.

VIII. An E. central co. of Minn., situated near the source of the Mississippi; area 11,000 sq. m. It is not included in the census of 1850, and then contained very few civilized inhabitants. Numerous small lakes are scattered over its surface. Pine and other timber is abundant, and is exported in considerable quantities.

CASS, Lewis, an American statesman, born at Exeter, N. H., Oct. 9, 1782, was the eldest son of Jonathan Cass. Both his father and mother were of old New Hampshire Puritan stock. His father, at the age of 19, had enlisted as a private soldier in one of the regiments raised by New Hampshire immediately after the battle of Lexington. He was present at the battle of Bunker Hill, and, having reenlisted, continued to serve in the New Hampshire continental line during the whole revolutionary war, in the course of which he rose to the rank of captain. He was recommissioned with the same rank in the army organized after the adoption of the federal constitution, and was afterward promoted to be a major. While he was employed in the military service in the territory N. W. of the Ohio, his family remained at Exeter; and Lewis, at 10 years of age, entered the academy at that place, where he pursued his studies with diligence and success till 1799. In that year Jonathan Cass removed his family to Wilmington, Del., where he was stationed for some months in his military capacity, and where young Lewis found employment as a teacher. His father, meanwhile, having made up his mind to resign his commission and to settle in the West, induced his son to seek his fortune also in the same direction. Descending the Ohio from Pittsburg in a flat-boat, then the only means of conveyance, they arrived at Marietta, the pioneer settlement of south-eastern Ohio, in Oct. 1800. The father soon removed with his family to a tract of land on the Muskingum near Zanesville, which had fallen to him as military bounty, but young Lewis remained at Marietta, where he entered on the study of the law. He was admitted to the bar in Dec. 1802, and soon after established himself at Zanesville, where he gradually acquired practice. In the summer of 1806 he married Elizabeth Spencer, whose father, then settled on the Virginia side of the Ohio, in Wood co., had emigrated from Lansingburg, in the state of New York. Shortly after his mar-

riage Mr. Cass was elected a member of the Ohio legislature, in which body he took a seat in December of the same year. The very first business that came up was a special message from Gov. Tiffin, based on communications made to him by President Jefferson, through a special agent, in relation to Burr and his designs, about which President Jefferson was greatly alarmed. This message, received in secret session, was referred to a committee of which Mr. Cass was a member. He drafted and the committee reported a bill, which he conducted through the legislature, where it encountered considerable opposition, authorizing the governor to call out the militia and to break up any unauthorized military preparation which might be on foot. Under this act such of Burr's boats as were being built in Ohio, and his provisions collected in that state, were seized, and the Ohio part of the expedition was thus broken up. A legislative address, drafted by Mr. Cass, protesting attachment to the union, which Burr was suspected of a design to divide by the Alleghanies, drew out a highly complimentary reply from the president, who soon after acknowledged Mr. Cass's services by an appointment as U. S. marshal for Ohio. The emolument of this office was but trifling and its duties limited, and Mr. Cass still continued to practise law as before; but this federal office disqualified him from sitting any longer in the Ohio legislature. The lower branch of that legislature, not long after, undertook to impeach 2 of the judges for having decided that a certain state law was unconstitutional and void. Mr. Cass appeared on the trial as one of their counsel, and by his able and successful defence added to his reputation as an advocate.—The hostile position of the western Indians and the growing difficulties with Great Britain led, in April, 1812, to the enrolment of 8 regiments of Ohio volunteers. Mr. Cass, who sympathized strongly with the popular feeling, was among the number, and was chosen colonel of the 8d regiment. These 8 regiments, about 1,200 strong, together with some 800 regulars under Col. Miller, constituted the army with which Gen. Hull was expected not only to protect Detroit from the British and Indians, but to invade and conquer Upper Canada. After a march of more than 200 m. through a swampy wilderness which then intervened between the frontier settlements of Ohio and those of Michigan, the troops reached Detroit early in July, war with Great Britain having meanwhile been declared. On July 11 they marched into Canada. The proclamation issued on this occasion was written by Col. Cass, for whom, too, the honor is claimed of having been the first man who, in the war of 1812, stepped in arms upon the British soil. He also commanded in a skirmish, on the 17th, in which the first blood was shed, the British being driven from a bridge across the Aux Canards river held by their outposts. Hull, however, alarmed at his isolation, and exaggerating the numbers of the

enemy and the danger of his position, soon recrossed to Detroit, and on Aug. 16 terminated the campaign, to the mortification of his officers and men, by surrendering his army, and Detroit and the territory of Michigan along with it, to the British general Brock. At the moment of surrender Col. Cass was absent with a detachment sent to relieve a provision train, the approach of which had been stopped by the enemy. This detachment, however, was included in the capitulation, and being without provisions, was obliged to yield. Col. Cass, stung with mortification at this unexpected turn of affairs, when asked to deliver up his sword, indignantly broke the blade and threw it away. By the terms of the capitulation the Ohio volunteers were dismissed on their parole not to serve again till exchanged, and Col. Cass, at the request of his fellow-soldiers, hastened to Washington for the purpose of vindicating them from any responsibility for this disastrous termination of the campaign. His report, anticipating that of Hull, who remained a prisoner with the British, was the first official account of the campaign given to the public. Col. Cass was exchanged in Jan. 1818, and about the same time was commissioned as a colonel in the regular service. His regiment was enlisted and ready by March, when he was further promoted to the rank of brigadier-general. He joined Gen. Harrison's army in July; and, Perry's victory on Lake Erie having opened the way, he bore his share in the pursuit of Gen. Proctor and the victory of the Thames. He was then placed in command at Detroit, and shortly after was appointed governor of Michigan. He now resigned the office of marshal of Ohio, which he had still continued to hold, and, not long after, his commission in the army also; having first, however, attended the court-martial for the trial of Hull. His testimony before the court, as his report had done, bore hard on that unfortunate commander, and has been at times a good deal criticized.—Though Detroit had been settled for more than a century, the territory of Michigan was yet in its infancy. It still remained what it had been from the beginning, little more than a station for Indian trade. The white inhabitants, mostly of French descent, did not exceed 5,000 or 6,000. Not a foot of land had ever been sold by the United States, the small tracts in private possession being held under French and English grants, often of doubtful validity. The settlements had neither church, schoolhouse, courthouse, gaol, bridge, nor scarcely a road, and the inhabitants had been reduced by the pending hostilities to a state of great destitution. The British had been driven away, but the neighboring Indians still remained hostile. The treaty of Greenville in July, 1814, at which Governor Cass aided, reestablished peace with the Ohio Indians; but it was not till the termination of the war with Great Britain that the territory became entirely secure from Indian attack. In June, 1815, Governor Cass removed his family to Detroit, and

the next year purchased there, for a homestead, a tract of 500 acres, for which he was able to pay in cash, out of his previous savings, the sum of \$12,000. This was reckoned by many an extravagant purchase, but its increase in value by the growth of Detroit ultimately made its purchaser a very wealthy man. Michigan at this time had no territorial legislature, and the business of selecting laws for it from the codes of the states devolved on Governor Cass and the territorial judges. Governor Cass was also *ex officio* superintendent of Indian affairs for the territory, which then included what now constitutes the two states of Michigan and Wisconsin, and this remained for several years the most important part of his duties. Of all this extensive territory, it was only a little tract bordering on Lake Erie and the Detroit river to which the Indian title had yet been extinguished. Within the bounds of his Indian superintendency, which was ultimately made to embrace all the tribes north-west of the Ohio, there were reckoned to be 40,000 Indians, mustering at least 9,000 warriors. The recent hostilities, and the distrust and suspicions of the Indians, occasioned by the constant calls upon them for additional cessions of land, rendered this office one of great delicacy and difficulty. But Governor Cass, while steadily carrying out the policy of acquisition, succeeded also in maintaining the respect, and even in securing the affection of the Indians. In 1817 he obtained, in conjunction with Governor McArthur, a cession of most of the remaining Indian lands within the state of Ohio, with adjoining tracts in Indiana and Michigan, to the extent of 4,000,000 acres in the whole. This cession removed the Indian barrier hitherto intervening between the settlements of Ohio and those of Michigan. In 1819 he met the Chippewas at Saginaw, and obtained a cession of lands in the peninsula of Michigan to the extent of 6,000,000 acres. As yet the north-western regions were very imperfectly known. At the suggestion of Governor Cass, an expedition, in which he himself bore a conspicuous part, and of which an account has been published by Mr. Schoolcraft, was set on foot in 1820, for exploring the northern shore of Lake Superior, and the course of the upper Mississippi. The next year, by a long, circuitous river navigation, he visited Chicago, then nothing but a military post, with a wide wilderness all about it, and there made a treaty with the Chippewas, Ottawas, and Potawatamies, by which a large additional tract was obtained, completing the extinction of the Indian title to the peninsula of Michigan south of Grand river. By 1824 the population of Michigan had so far increased, that a legislative council was established. It consisted of 9 members, not however elected by the people, but nominated by the president. This was the second grade of territorial government under the ordinance of 1787. In 1825 Governor Cass, in conjunction with Governor Clark of Missouri, attended a grand council at Prairie du Chien of the tribes of the

north-west, of which the object was, by a definite settlement of boundaries, to put a stop to the wars which for years these tribes had waged against each other. In 1826 he met the Chippewas in council at Fond du Lac, at the western extremity of Lake Superior. In 1827, while engaged in a treaty at Green Bay, he was called upon to assist by his presence in suppressing the hostilities which had broken out between the Winnebagoes and the miners at Fever river, near Galena. Ascending the Fox river, descending the Wisconsin and the Mississippi to St. Louis, and returning to Green Bay by the Illinois river and Lake Michigan, he travelled, in the course of 2 months, nearly 4,000 miles, mostly in birch bark canoes, as yet the chief means of conveyance on those waters. In 1828 he made 2 treaties, one at Green Bay, the other at St. Joseph's, by which many millions of acres were ceded to the United States. Up to his resignation of the office of governor of Michigan, in July, 1831, he had concluded 19 treaties with the Indians, by which cessions had been acquired in Ohio, Indiana, Illinois, Michigan, and Wisconsin, to an amount equal to nearly or quite a fourth part of the entire area of those states. Meanwhile, he embodied his extensive and intimate knowledge of the Indians and their affairs, the fruits of his long intercourse with them, and of a diligent study of whatever had been printed on the subject, in two articles published in the "North American Review," one in 1828, in the 50th number of that periodical, and the other in the 55th number. These articles attracted much attention, and contributed largely to make their author known. The second article contained a full review of the relations between the Indians and the British and American governments, and ascribed the recent Indian disturbances to British instigation. These articles, with a discourse which Mr. Cass delivered in 1829 before the newly formed historical society of Michigan, created for him a literary reputation, and occasioned applications to him for anniversary addresses and contributions to periodicals, with which he frequently complied.—When President Jackson reconstructed his cabinet in August, 1831, Mr. Cass was appointed secretary of war. The policy of the removal of the Indians, especially the southern tribes, to districts west of the Mississippi, had been warmly espoused by Gen. Jackson. The defence of this policy, which had elicited much criticism and a warm opposition, was ably entered upon by Secretary Cass in his first annual report. Soon after, he proceeded to break a lance with the supreme court of the United States, upon the question of the right of the state governments to extend their state laws over the Indian tribes within their territorial limits. In the case of the Cherokees, the supreme court had decided that the state of Georgia had no such right. This decision was criticized and controverted by Secretary Cass in an elaborate disquisition, published in the Washington "Globe," then the

organ of the government. The state courts of Georgia, taking a similar view of state rights, did not hesitate to imprison and hang in defiance of the supreme court of the United States. The removal policy, which was vigorously pushed, greatly strengthened the administration of Gen. Jackson in the South, but it was attended with an unlooked-for consequence, and met with an unexpected obstacle in the Florida war, the first 2 years of which fell within the period of Mr. Cass's administration of the war department.—In 1836 Mr. Cass exchanged his post of secretary of war for that of ambassador to the French court. Having got through the press of business which grew out of the recent interruption of diplomatic intercourse, occasioned by the indemnity dispute, and having settled the last remnant of that controversy by obtaining the interest on the indemnity withheld when the principal was paid, Mr. Cass in 1837 embarked at Marseilles for a voyage in the frigate *Constitution* to Egypt by way of Constantinople. The vessel followed the coast, and stopped at the principal ports, whence excursions were occasionally made into the interior. Mr. Cass had thus an opportunity to see not only Constantinople, Alexandria, and Cairo, but Genoa, Leghorn, Florence, Rome, Palermo, Malta, Athens, Corinth, and Jerusalem. The *Ægean* sea, of which he visited several of the islands, reminded him of the vast fresh-water seas of America, on which he had so often sailed. In the river Nile he found a strong resemblance to the swift and turbid Missouri. During his subsequent residence at Paris, Mr. Cass made frequent journeys in France, and also visited England. He was on excellent terms with Louis Philippe, of whose character he gave a very friendly and favorable account in his "King, Court, and Government of France," published in 1840, originally as an article in the "Democratic Review." By far the most remarkable incident of his diplomatic career occurred just at its close, in his attack on the quintuple treaty for the suppression of the slave trade. Great Britain, subsequently to the year 1815, had taken that suppression vigorously in hand, but had soon found that the right of searching suspected vessels was a very necessary means toward accomplishing its object. It was decided, however, by the British admiralty courts that search was a purely belligerent right which did not exist in time of peace. Great Britain then sought to obtain this right by treaties, stipulating its mutual concession. Such a treaty was made with the United States in 1824, granting a mutual right of search "on the coast of Africa, the West Indies, and America," of vessels suspected to be slavers. The senate of the United States, in ratifying this treaty, struck out the word "America," which caused its rejection by the British government, in the hope of subsequently obtaining a larger concession. This hope, however, was disappointed. There was a disagreeable association in the American mind between search and impress-

ment, and, the American government from this time forward steadily refused even what the rejected treaty had conceded. Meanwhile, Great Britain established this right of mutual search of suspected slavers by treaties with Spain, Portugal, France, and other states, and in further prosecution of the same policy, and with a view to incorporating this usage into the international code of Europe, and ultimately of Christendom, obtained the signature at London, Dec. 20, 1841, of a treaty by which Great Britain, France, Russia, Austria, and Prussia mutually conceded this right under certain restrictions, and between certain latitudes. No sooner had the signing of this treaty, known as the quintuple treaty, become public, than Mr. Cass not only filed a protest against it in the French office of foreign affairs, but printed a pamphlet in hopes to prevent its approval by the French chambers. This pamphlet accused Great Britain of aiming, under guise of suppressing the slave trade, at a lordship of the seas, revived the impressment controversy, and attacked with much keenness the doctrine lately set up by Lords Palmerston and Aberdeen, in their correspondence with the American minister at London, that although, except by express stipulation, there was no right of search for the suppression of the slave trade, there was a right to visit suspected vessels for the purpose of verifying the flag and testing the right to bear it. This claim had been made the subject of animadversion in President Tyler's annual message of Dec. 1841, and it was the position then taken by the president upon which Mr. Cass mainly rested his protest against the treaty, as an attempt to interpolate a new doctrine into maritime law. At the close of this protest, which bore date Feb. 18, 1842, Mr. Cass stated that it was made without instructions from his government, with which there was no time to communicate, and that if not sustained in the position he had taken he should resign. In communicating his proceedings to his own government, he pressed the necessity of instant preparations for war. The feeling of the French public and the French chambers, easily excited at that time to hostility to Great Britain, was such that Louis Philippe did not venture to ratify the treaty, which thus fell to the ground. The course adopted by Mr. Cass, though it brought great obloquy upon him from various quarters, was approved by the president; but in the Ashburton treaty, negotiated shortly after, Mr. Cass found occasion for throwing up his mission. The agreement of the United States in that treaty to maintain a squadron on the coast of Africa, to cooperate with the British in the suppression of the slave trade, without at the same time requiring from the British a renunciation of the doctrine of the right of visit, was regarded by Mr. Cass as substantially a disavowal of his protest and pamphlet, and as placing him in an awkward position with the French government, by no means well pleased with his in-

terference to defeat the quintuple treaty. He accordingly resigned his embassy and returned home, where he arrived at the close of the year. His criticisms on the Ashburton treaty, contained in his letter of resignation, produced a sharp controversy between him and Mr. Webster, then secretary of state and negotiator of that treaty.—Already before his arrival in the United States, Mr. Cass had begun to be mentioned as a democratic candidate for the presidency, and he soon had many letters to answer as to his opinions on various points. But the negotiations opened not long after, by President Tyler and Mr. Calhoun, for the annexation of Texas, introduced a new question into politics, on which the presidential election finally turned. Mr. Clay, the candidate of the whigs, and Mr. Van Buren, for whom a large majority of the delegates elected to the democratic nominating convention were instructed to vote, both took grounds against immediate annexation. That policy, however, was exceedingly popular at the South, and beside Mr. Calhoun and President Tyler, both of whom had hopes of a democratic nomination, Mr. Buchanan, R. M. Johnson, and other presidential candidates, came out as its advocates. Mr. Cass gave in his adhesion, in a letter dated 17 days before the meeting of the convention, advocating annexation, and declaring his growing conviction that a majority of the people were in favor of it. The convention met at Baltimore, May 27, 1844. The opponents of Mr. Van Buren succeeded in carrying the adoption of the rule of the conventions of 1833 and 1836, requiring a two-thirds nomination. On the 1st ballot Mr. Van Buren had a majority, but lacked some 20 of the requisite two-thirds. Mr. Cass had the next highest, though very much smaller, vote. As the voting proceeded, Mr. Cass gained, and on the 7th ballot received 24 votes more than Mr. Van Buren, but still short of a majority. After the 8th ballot Mr. Van Buren was withdrawn by his friends, who had determined to give their votes for Mr. Polk, to the exclusion of Mr. Cass. Mr. Cass's name was also withdrawn, a letter of his being read in which he authorized that proceeding, in case it did not appear that a hearty and united exertion would be made in his favor. Mr. Polk, who had never been thought of by the public for any higher office than vice-president, and whose name had not been introduced into the canvass till the 8th ballot, when he received some 80 votes, was at the 9th ballot unanimously nominated. In the excited campaign that followed, Mr. Cass took an active part, stumping the states of Michigan, Indiana, and Ohio, on behalf of Mr. Polk. Shortly after Mr. Polk's election, he was himself chosen a U. S. senator from the state of Michigan, admitted into the Union in 1836, and now rapidly increasing in population. Taking his seat in Dec. 1845, he soon made himself conspicuous on the Oregon question, then a matter of dispute with Great Britain. He insisted upon the

maintenance at all hazards of our claims as far N. as 54° 40', to which it was contended that Mr. Polk and the party had been pledged by the Baltimore platform, not less than to the annexation of Texas. In the course of one of his speeches on this subject, he took occasion to retort upon Lord Brougham, who, in consequence of his interference with the quintuple treaty and his pamphlet against it, had stigmatized him as "the impersonation of mob hostility to Great Britain." The Oregon dispute was soon settled by a treaty made and ratified by the help of the whigs, in spite of the opposition of Mr. Cass, and of a considerable section of the democratic party; and the government was thus left free to engage in the war against Mexico. This war led to the introduction into congress by Mr. Wilmot, a democratic representative from Pennsylvania, of a proviso, famous as the Wilmot proviso, that from all the territory acquired by treaty with Mexico slavery should be excluded. This proviso, at its first introduction near the close of the session of 1846, seemed to have the almost unanimous support of the northern section of the democratic party. No vote was taken upon it at that session in the senate; but Mr. Cass afterward admitted that, had the opportunity occurred, he should have voted for it. When this question came up again in March, 1847, he advocated its postponement till after the close of the war. As the war approached a conclusion, his famous Nicholson letter made its appearance. This letter, dated Dec. 24, 1847, proposed to keep the question of slavery or its prohibition in the territory to be acquired from Mexico out of congress, by setting up for the legislatures of the territories an exclusive right of determining their own domestic institutions, equivalent to that possessed by the states. Mr. Cass declared himself in this letter decidedly opposed to the Wilmot proviso, as standing in the way of the acquisition of territory, and as unnecessary, since, from the character and climate of the country about to be acquired from Mexico, slavery could hardly go into it. He did not deny his change of opinion on this subject, but justified it by the change simultaneously going on in the public mind. In the democratic nominating convention which met at Baltimore May 22, 1848, that change was very manifest. In that body the Wilmot proviso had few or no friends, except one branch of the double delegation from New York. These New York Wilmot proviso men, refusing to divide the vote of that state with the rival delegation, as the convention had proposed, presently retired from that body, leaving New York without a vote. The principal candidates were Mr. Cass, Mr. Buchanan, and Mr. Woodbury, all anti-Wilmot proviso men. On the 1st ballot Mr. Cass took the lead, and on the 4th ballot he received the requisite two-thirds of the votes cast, and was declared the candidate. He found, however, a formidable opponent in Gen. Taylor, nominated by the

whigs on the strength of his military reputation acquired in the Mexican war; and he was still further weakened by the determination of the New York seceders from the convention, the special friends of Mr. Van Buren, not to support him—a resolution in which they were sustained by the acceptance on the part of Mr. Van Buren of a Wilmot proviso, or as it was called a freesoil nomination. The division thus made in the democratic ranks secured to Gen. Taylor the state of New York, and his election to the presidency by a majority of 86 electoral votes.—Mr. Cass, on being nominated for the presidency, had resigned his seat in the senate, but subsequently to his defeat was again elected in June, 1849, for the remainder of the term he had resigned. At the next session of congress, the Wilmot proviso being still agitated, and he himself being under instructions from the Michigan legislature to vote for it, he entered into an elaborate defence of the doctrine of his Nicholson letter, now fully taking the additional ground that the Wilmot proviso would be unconstitutional, congress having no right to legislate upon a subject over which the constitution gave that body no control. He professed himself a believer in the doctrine of instructions "when fairly exercised and under proper circumstances," and promised to resign rather than disobey. He had, however, as he was well aware, sufficient influence with the Michigan legislature to procure the recall of the instructions. He was a member of Mr. Clay's compromise committee of 1850, and supported all the measures which emanated from it, including the new fugitive slave bill. But he did not vote for that bill, excusing himself on the ground that it made no provision for giving the alleged fugitive, after he was carried back, a trial by jury to ascertain if he were really a slave. Such a provision Mr. Cass insisted would have rendered the bill much less objectionable to the free states. Being reelected a senator from Michigan for a second term of six years from the 4th of March, 1851, he still continued a prominent democratic candidate for the presidency. But in the convention which met at Baltimore in May, 1852, beside Mr. Buchanan and Mr. Magcy, he encountered another formidable competitor in the person of Mr. Douglas, who stood in this convention in much the same relation to Mr. Cass in which Mr. Cass had stood in that of 1844 to Mr. Van Buren. The contest was long, but after a struggle of 5 days and 49 ballots, Mr. Cass found himself again passed over, and Franklin Pierce selected by a compromise among the conflicting interests as the candidate of the democratic party. The slavery controversy, which experienced a temporary lull after the passage of the compromise acts, revived with new vehemence upon the introduction into the senate by Mr. Douglas, at the commencement of 1854, of the Kansas-Nebraska bill, including a proposed repeal of the Missouri compromise, or rather of that part of it excluding slavery from that portion of the



Louisiana cession north and west of Missouri. Mr. Cass declared himself opposed to this new agitation. He was aware, he told the senate, that it had been reported that he himself had intended to bring in a bill respecting the Missouri compromise, but this he declared to be a total mistake. The bill, however, having been modified by introducing into it the doctrine of the Nicholson letter, in a provision leaving to the inhabitants of the territories the power to regulate their own institutions in their own way, subject only to the constitution of the United States, Mr. Cass voted for it, and on the night of its passage he took occasion to congratulate the senate on the triumph of "squatter sovereignty." The passage of this bill led forthwith to the organization of a new party based on opposition to the extension of slavery, and which, under the name of the republican party, soon became predominant in most of the northern states. It triumphed even in Michigan, where Mr. Cass was unable to secure a reelection as senator. He even received from the legislature a new set of instructions as to his votes on the Kansas question, no less contrary to his own views than those on the subject of the Wilmot proviso of which he had formerly procured the recall. These instructions he did not obey, nor did he resign his seat. He took the ground that in order to be binding, instructions must come not merely from the legislature, but from that party in it to which the senator sought to be instructed was indebted for his seat; and as that was not the case with these instructions, he declined to pay any attention to them.—In the convention which met at Cincinnati in May, 1856, to nominate a democratic candidate for the presidency, Mr. Cass was no longer a candidate, beyond receiving a few scattering votes; but in the nomination by that body of Mr. Buchanan he heartily concurred, and upon Mr. Buchanan's entering upon office in March, 1857, received from him the appointment of secretary of state. In this capacity he has been enabled to achieve a very gratifying triumph, in obtaining from the British ministry the recognition as correct of his denial, so warmly urged in his pamphlet on the quintuple treaty, of the existence, in time of peace of any marine right of visit; he conceding, however, that in cases of grave suspicion of a false assumption of national character, and where no injury results from the visit and search, no serious ground would exist for national reclamation.—In the enjoyment of excellent health, Mr. Cass still retains, notwithstanding his advanced age, a remarkable capacity for labor. Possessing naturally a very robust constitution, he has confirmed his health by strict temperance, himself practising that total abstinence from intoxicating liquors which, as governor of Michigan, he urged upon the Indians, and as secretary of war, sought to introduce into the army. "His habits are simple, his manners and disposition democratic; his style of living plain but substantial; and his residence not ostentatious

but elegant. Averse to idleness and dissipation, he is merry with his companions and strong in his friendship. He is remarkable for his affability to young persons, and surrounded by them at his own table, he can be as hilarious and happy as the gayest of them. Fond of his study and pleased with his own reflections in retirement, he is not a recluse, but on all occasions his admirers, friends, and fellow citizens are welcome to his large and hospitable mansion. To a well selected library he makes constant additions from the numerous publications of the day. He delights to pass an hour or so in the perusal of romances such as those of Scott, Cooper, Irving, or the like." See "Life and Times of Lewis Cass," by W. L. G. Smith, New York, 1856. The same friendly biographer notes as a marked characteristic, his "having always evinced an aversion to every thing that savored of British."

CASSANDER, king of Macedon, son of Antipater, born about 354 B. C., died in 337. He disputed the sovereignty of Macedon with Polysperchon, whom Antipater had appointed regent at his death in 319. Allying himself with Ptolemy and Antigonus, he conquered Athens; captured Olympias, the mother of Alexander the Great, and put her to death; and connected himself with the royal family by marrying Thessalonica, half-sister to Alexander. He joined, in 315, the coalition against the growing power of Antigonus; murdered, in 311, the rightful heir to the throne, Alexander Aegus, and his mother Roxana; and took the title of king in 306, which was confirmed to him by the decisive battle of Ipsus in 301.

CASSANDER, GEORGE, a Flemish theologian, born in the island of Cadzand, in Zealand, in 1515, died Feb. 8, 1566, officiated for some time as professor of divinity at Bruges and Ghent, and gained a high reputation by his various attainments. In 1561 he published a treatise, designed to reconcile the Catholic and Protestant theologians, which was attacked by Calvin, but favorably received by the emperor Ferdinand and other German princes, the emperor encouraging him to persist in his conciliatory task. He now brought forward his famous work entitled *Consultatio de Articulis Fidei inter Papistas et Protestantos controversis*, in which he reviews the controverted articles of the Augsburg confession. He was sincerely attached to the Roman Catholic faith, but he was accused of taking too favorable a view of the points brought forward by the Protestants, and several of his writings were condemned by the council of Trent. His collected works were published in Paris in 1616.

CASSANDRA, called also ALEXANDRA, a Trojan princess, daughter of Priam and Hecuba. Apollo, enamored of her, permitted her to ask of him whatever she desired, as a reward for her complaisance. She begged for the gift of prophecy; but when the god had bestowed it upon her, she refused to keep her promise to him. Thereupon Apollo, unable to withdraw

from her the prophetic art, ordained that her predictions should never be believed. In vain she foretold that the abduction of Helen would cause the ruin of Troy—counselled the making of peace with the Atridae—announced to Priam, Paris, and the Trojan people, the fate which awaited them—and opposed the reception of the wooden horse. On the night of the capture of Troy, she took refuge in the temple of Pallas, but was torn away from the statue of the goddess by Ajax, son of Oileus. She fell by lot as a slave to Agamemnon, who carried her to Greece; and, after fruitlessly advising that prince of the fate which was reserved for him, she perished with him in the massacre plotted by Clytemnestra. She is an important personage in Greek poetry, and is the heroine of a poem by Lycophron, celebrated for its obscurity.

CASSANO, a picturesque town of Naples, in the province of Calabria Citra, in the district and 8 m. E. of Castrovillari; pop. about 6,000, comprising many Arnauts. It is built in the concave recess of a steep mountain, round an isolated rock, on which are the ruins of an ancient castle. It is the see of a bishop, contains a cathedral, 4 convents, an episcopal seminary, and hot sulphurous springs, and plaster and stone quarries are in the vicinity. The inhabitants are principally employed in the manufacture of macaroni, leather, table linens, and fabrics of cotton and silk. Cassano is supposed to stand on the site of the ancient Oes; according to some other authorities, however, the neighboring village of Oivita (an Albanian colony) occupies the real site of the ancient town. A town in the province of Principato Ultra, 8 m. S. W. of St. Angelo, has a fine church, a hospital, 2 charitable institutions, and a paper manufactory; pop. about 4,600.—There is another Cassano in the province of Bari, and there are several places of the same name in Lombardy.

CASSANO SOPRA ADDA, a town of Lombardy, in the government and 16 m. N. E. of Milan, noted for its numerous silk factories. The town occupies an important military position on the river Adda. A battle was fought here, Sept. 16, 1259, which resulted in the defeat and capture of the tyrant Ezzelino. On Aug. 16, 1705, a victory was gained here by the French under Vendôme, over the imperial troops under Prince Eugene; and on April 25, 1799, the French, under Moreau, were defeated here by the Russians and Austrians, under Suwaroff.

CASSATION, *COUR OF*, the highest court of appeal in France, was established by the first national assembly, Nov. 27, 1790, under the name of *tribunal de cassation*, with a view of putting an end to the confusion that had so largely prevailed in the judiciary system of the country, and of imparting to the whole jurisdiction a spirit of unity, without endangering the independence of the inferior courts. In 1804 the name of *cour de cassation* was given to the court, which it still retains. The functions of the court are not to go into the facts, but

simply to revise the proceedings of the inferior courts, and any decision taken by the court of cassation is considered final and binding. It is composed of a president, 3 vice-presidents (*présidents de chambre*), 45 counsellors, an attorney-general (*procureur général*), 6 assistant attorney-generals (*avocats généraux*), a chief clerk (*greffier en chef*), and only 60 advocates are permitted to plead before the court. The counsellors are elected for life, and in the case of one dying, the emperor proposes three new candidates, of whom the senate chooses one. The president, the vice-presidents, the attorney-general, and the assistant attorney-general, are appointed by the emperor. The court is divided into 3 chambers, one for appeals in civil and one in criminal cases, and the chamber of requests, a sort of preliminary tribunal, which decides on the *locus standi* and admissibility of the appeal.

—A court of cassation and revision was established in Berlin in 1819, for the Rhenish provinces of Prussia; the Düsseldorf court of appeal and 6 district courts are under its jurisdiction.

CASSAVA, the meal, and bread made from it, obtained from the roots of several species of the genus *manihot* (from the Indian *manioc*)—plants of the family of the *euphorbiaceae*, which grow in the West Indies, South America, and Africa. Three species are described, but under different names by different botanists. The genus, formerly included in *jatropha* of Linnaeus, was separated by Kunth, and called *jani-pha*; and the common species was designated as *J. manihot*, of which two varieties, the sweet and bitter, are distinguished. But later authorities designate the genus as *manihot*, and the common species as *M. utilisima*; another species as *M. aipi*, and a third as *M. jani-pha*. The first is the bitter cassava, indigenous to Brazil, and cultivated in other parts of South America. It is a shrub that grows 6 or 8 feet high, and has a large tuberous root, which sometimes weighs 80 pounds. This root contains a large proportion of starch, which is associated with a poisonous milky juice, containing hydrocyanic acid and a bitter acrid principle. The other two species do not possess this poisonous juice. All are used alike for the preparation of the meal. The root is well washed, then scraped or grated to a pulp, and this, when of the poisonous kind, is thoroughly pressed in order to remove the juice; but even if some of this is left in the meal, it escapes by its volatility in the process of baking or drying the cakes upon a hot iron plate. Afterward dried in the sun, the cassava is kept as food, to be mixed with water and baked like flour in large thin cakes. These are a coarse, cheap kind of bread, much used by the negroes and poorer whites, in which the ligneous fibre is plainly visible. Its nourishing qualities consist in the starch of which it is principally composed. The expressed juice also furnishes by deposition a very delicate and nearly pure starch, when left to stand for some time. Well

washed with cold water, and afterward dried, this is the tapioca of commerce, sometimes called Brazilian arrow-root.

CASSAY, KATHER, or MUNNIPPOOR, a country of India, lying between lat. 24° and 26° N., and long. 93° and 95° E.; area estimated at 7,584 sq. m.; pop. at 75,840. It consists of a central fertile valley, surrounded on every side by mountains, varying from 6,000 to 9,000 feet in height, and covered with dense forests. The valley thus enclosed is 86 m. long and 18 m. broad, contains 650 sq. m. of rich alluvial soil, and is 2,500 feet above the level of the sea. It produces abundantly rice, tobacco, cotton, sugar-cane, and indigo; and in the north, also the tea-plant. Nearly all the garden produce of Europe is raised here in gardens, having been introduced by the British since the Burmese war. The surrounding mountains abound in the noblest varieties of forest trees, and wild elephants and deer of the largest size are constantly seen among the glens and defiles. The inhabitants more nearly resemble in person and manners the Hindoos than the Burmese. The upper classes profess the Hindoo faith, and this country may be considered the extreme eastern limit of Brahminism. Cassay belonged to the Burmese before 1826, when, by the treaty of Yandaboo, it became independent. Its government is vested in a hereditary rajah.

CASSEL, an ancient town of France, pop. 4,495, department of Nord, 28 m. N. W. of Lille, agreeably situated on an isolated hill 600 feet high, commanding one of the most extensive views in Europe. It was strongly fortified during the middle ages. In 1070, King Philip I. of France was defeated here by Robert le Frison, count of Flanders; in 1828, Philip VI. won a complete victory over the Flemish troops; and in 1677, Philip, duke of Orleans, brother of Louis XIV., triumphed here over the prince of Orange.

CASSEL, or KASSL, the capital of the electorate of Hesse Cassel, Germany, and of the province of Lower Hesse, on the river Fulda, connected by railway with Frankfort on the Main, and, *via* Hanover and Eisenach, with Berlin and Leipzig. Pop. about 85,000 (beside a garrison of 4,000 men), all Protestants, excepting 8,000 Catholics and 1,000 Jews. It is divided into the old town, the lower new town, and the upper new town, and has 10 Protestant churches, a Catholic church, and a synagogue. St. Martin's church contains the tombs of many of the electors. The city contains the government buildings, the elector's palace, the theatre, the observatory, and other fine edifices. The museum comprises collections of pictures and natural history, and a library of about 100,000 volumes. The *Friedrichs Platz*, with a statue of the elector Frederic I., who was the founder and patron of the principal art collections of Cassel, is one of the most admirable public squares in Europe. The public gardens are charming, especially that of

Williamshöhe, in the vicinity, in which the elector's summer palace is situated. There are manufactures of cotton, silk, and woollen fabrics, leather, hats, carpets, kid gloves, porcelain; and the place is in a great measure the emporium of the trade of Hesse Cassel. Two fairs and a wool market are held here annually. The town abounds with educational, scientific, literary, artistic, and musical institutions. Spohr the composer resides in this city, and Müller the historian died here. The principal newspaper is the *Kasseler Zeitung*.

CASSIA, the bark of the *cinnamomum cassia*, an inferior quality of cinnamon which is often mixed with the genuine article. (See CINNAMOM.)—Cassia is also a genus of plants, the species of which furnish the ingredients of the medicine senna, and sometimes also a medicine known as cassia.

CASSIN, JOHN, an American ornithologist, born near Chester, 12 miles from Philadelphia, Penn., Sept. 6, 1818. He has resided in Philadelphia since 1834, and, excepting a few years partially given to mercantile pursuits, has devoted himself to his favorite study of ornithology. He has contributed descriptions of new species and synoptical reviews of various families to the "Proceedings" and the "Journal" of the Philadelphia academy of natural sciences; and his more elaborate publications are "Birds of California and Texas," a handsome octavo volume, containing descriptions and colored engravings of 50 species not given by Audubon; a "Synopsis of the Birds of North America," not yet completed; "Ornithology of the United States Exploring Expedition;" "Ornithology of the Japan Expedition;" "Ornithology of Gillies's Astronomical Expedition to Chili;" and the chapters on rapacious and wading birds in the "Ornithology of the Pacific Railroad Explorations and Surveys." His works are the result of careful research, and are especially valuable for their descriptions and classification of many birds not given in the previous works of Wilson and Audubon.—Mr. Cassin is of a Quaker family, several members of which have distinguished themselves in naval and military service. His great-uncle, JOHN CASSIN, a commodore in the American navy, conducted the defence of Philadelphia in the war of 1812. His uncle, STEPHEN CASSIN (1782–1857), also a commodore, served under Com. Preble in the war with Tripoli, and for his bravery in the action on Lake Champlain in 1814, under Com. McDonough, he was rewarded by congress with a gold medal.

CASSINI, the surname of 4 celebrated astronomers. I. JEAN DOMINIQUE, born June 8, 1625, died Sept. 14, 1712, studied with the Jesuits at Genoa, and was in 1650 made first professor of astronomy at Bologna. He first observed the shadows of Jupiter's satellites on the body of the planet, and published ephemerides of those bodies. He discovered the period of Jupiter's rotation, and also made observations in the wholly disconnected science of entomol-

ogy. In 1678 he removed to Paris, discovered 4 satellites of Saturn, noticed the zodiacal light, and discussed the moon's libration in an able manner. II. JACQUES, son of the preceding, born in Paris in 1677, died April 16, 1756, is celebrated for his labors upon the system of the planet Saturn, and also upon the figure of the earth. He superintended the geodetical measurements in France, commissioned in 1788. III. CÉSAR FRANÇOIS, son of the foregoing, born June 17, 1714, died Sept. 4, 1784, devoted a great part of his life to an accurate survey of France, and the preparation of maps of that country. IV. JACQUES DOMINIQUE, son of the preceding, born in Paris, June 30, 1747, died Oct. 18, 1845, was director of the observatory at Paris, and continued the improvement and publication of his father's maps.

CASSINO, a game of cards in which 4 are dealt to each player, 4 being also placed on the board. The greatest number of cards counts 3 points, and of spades, 1; the 10 of diamonds, 2; the 2 of spades, 1; and each of the aces, 1. The object is to take as many cards as possible. Thus, a 10 in the player's hand will take a 10 from the board, or any number of cards which can be made to combine into 10. The name of the play is derived from the societies' rooms in Italy, and continental Europe generally, under the name of casinos, where probably the game originated.

CASSIODORUS, MAGNUS AURELIUS, a Roman statesman under the Ostrogothic monarchs, born at Soylacium, in the Bruttium, A. D. 468, date of death unknown. He was of an ancient and wealthy Roman family. In his youth he distinguished himself by his talents. Odoacer, king of the Heruli, the 1st barbarian king of Italy, raised the young Roman to the high office of *comes rerum privatarum*, and afterward to that of *comes sacrarum largitionum*, which gave him the command of the treasury of the kingdom. When Theodoric, king of the Ostrogoths, overcame and supplanted Odoacer, he used his influence among the Bruttians and the Sicilians to secure their peaceful submission to the Ostrogothic monarch. Theodoric gladly took him into his service, and for many years, and under various titles, he was prime minister of the barbarian kingdom of Italy. When Theodoric in his old age began to persecute the leading Latins in his service, Cassiodorus prudently resigned his situation and dignities, and retired to his estates. After the death of Theodoric he was recalled to power, served with distinction and fidelity Amalasontha, Athalaric, Theodatus, and Vitiges. Upon the temporary triumph of the emperors of the East, being now 70 years of age, he retired again to the monastery of Viviers which he had founded in Calabria. In this retreat he passed the remainder of his days, which were prolonged until the ex-minister was nearly a century old. His career as a historian and man of letters began when his career as a statesman ended. The monastery of Viviers is memorable in the history of the human

mind. Cassiodorus taught his monks to labor in the fields as husbandmen, and to devote themselves to the copying of ancient manuscripts, then perishing rapidly under the effects of barbarian ascendancy and Roman neglect. This monastery was taken as a model for others founded in all parts of Christian Europe. His arrangement of the branches of a liberal education into grammar, rhetoric, and dialectics (the trivium), and arithmetic, geometry, astronomy, and music (the quadrivium), was accepted throughout the middle ages, and long after, as the only true programme of a liberal education. His writings on education form a considerable part of his literary remains. His history of the Goths in 12 books has not survived, but the epitome of the same by Jornandes is extant, and is an invaluable authority. Equally important in a critical point of view are his state papers in 12 books, which fortunately have survived. These documents are our chief authority upon the internal condition and government of Italy during the period of Ostrogothic rule. The style is very florid and affected, the language very corrupt. Tiraboschi characterizes them as *barbara eleganza*. He also wrote a universal history down to A. D. 519, and an ecclesiastical history from the era of Constantine down to the time of Theodosius the younger. These 2 works enjoyed great consideration during the middle ages, but since the revival of learning have fallen into oblivion. The 1st edition of his works was published at Paris in 1584; the latest and best is that published by D. Garet at Rouen, 1679, and reprinted at Venice, 1729. We have 8 biographies of Cassiodorus, one in Latin, prefixed to Garet's edition of his works; another in French by St. Marthe, Paris, 1694; and a 3d in German by De Buat, in the 1st volume of the transactions of the royal academy of Munich.

CASSIOPEIA, a northern constellation, easily recognized by the form, a letter W, on the opposite side of the pole from the Great Bear; named from the wife of Cepheus (king of Ethiopia), and mother of Andromeda. (See Ovid's "Metamorphoses," V., and the "Phenomena" of Aratus, 187.) The constellation was distinguished in 1572 by a brilliant temporary star which shone for 18 months and then disappeared. It was this phenomenon that led Tycho Brahe to study astronomy.

CASSIQUIARE, or CASSIQUIARI, a deep and rapid river of Venezuela. It forms the S. fork of the Orinoco, and connects that river with the Rio Negro. Where it leaves the Orinoco it is 100 yards broad, and at its junction with the Rio Negro, about 600. By means of the Cassiquiare water communication is established for canoes from the interior of Brazil to Caracas, in Venezuela.

CASSIS, in conchology, the name of a genus of univalve shells, separated, by De Lamarck from the buccinum of Linnæus. It includes the species known as "helmet." Fine specimens of this genus are obtained for the use of the cameo

artists, the different colored layers of which the shell is composed rendering it particularly well adapted for their use.

**CASSITERIDES**, or **TIN ISLANDS**, supposed from the quantity of tin which the Phœnicians, Carthaginians, and Romans derived from them, to be the modern Scilly islands, near the coast of Cornwall, England. Their position, too, as defined by Strabo, corresponds more nearly with the Scilly group than with any other. Situated almost within the English channel, they have been very dangerous to modern navigation, and are become not less celebrated for the shipwrecks which they have caused than for their mines of tin. The Phœnicians who first discovered these islands were so jealous of the commerce which was supplied by them that their pilots first landed upon the neighboring coasts, and approached the mines only by stealth, to elude any ships which might be following and observing. The Romans sent here their criminals to work and be useful. The ancient inhabitants of these islands were accustomed to dress in black, to lead a wandering life, supplying all their wants by fish, milk, and the wool of their flocks, and satisfied in receiving salt and little brazen utensils in return for their lead. The group consists of 45 islands, several of which are only naked rocks.

**CASSIUS**. I. **LOWENIUS CASSIUS**, the leader of the conspiracy against Cæsar, died in 42 B. C. In 53 he was questor in the campaign against the Parthians, and distinguished himself by military skill, particularly after the death of Crassus, in the defeat of Carrhae. Having collected the remains of the army, he defended Syria, and won in the two next years 2 victories over the Parthians. After his return to Rome he was tribune of the people, embraced the party of the senate at the outbreak of the civil war, and followed Pompey, whose fleet he then commanded, in his flight. After the defeat at Pharsalia (48 B. C.), he led the fleet to the Hellespont, but having fallen in with Cæsar, he surrendered. Cæsar pardoned him, made him prætor, and promised him the province of Syria. At the same time Cassius was engaged with Brutus in forming a conspiracy against the dictatorial rule and the life of his benefactor. Cæsar fell on the ides of March, 44 B. C., and the senate rewarded his murderers with provinces. Cassius received Syria, where he defeated his opponent Dolabella, plundered its cities to provide means for the war against Antony and Octavianus, and returned with Brutus to Macedonia. The 2 ensuing battles of Philippi (42 B. C.) ended their lives with the hopes of the Roman republicans. In the first, Antony defeated the wing of Cassius, who, mistaking the cavalry of the victorious Brutus, hastening to his relief, for that of Octavianus, killed himself, as Plutarch says, with the dagger which wounded Cæsar. In the second, Brutus, who mourned him as the last of the Romans, followed his example. II. **CASSIUS**, commonly called *Parmensis*,

from his birthplace, the city of Parma. He was a Latin poet of some merit. After the murder of Cæsar he adhered to the aristocratic republican party of Brutus and his namesake, Cassius, and fought on their side until their defeat at Philippi; he then retired to Athens, where he was put to death by Varius, or Varus, an officer of Augustus, who was sent there for that purpose by the triumvir. He is not to be confounded with Cassius of Etruria, who is ridiculed by Horace in his *Sermones* for his facility and poverty of composition, but is believed to be the person alluded to by Shakespeare as torn to pieces in the streets of Rome by the rabble immediately on the celebration of Cæsar's funeral rites, and the raising of the people by Marc Antony. III. **LUCIUS CASSIUS HEMASTA**, the earliest Roman annalist, wrote about 200 B. C., and is often cited by Pliny and others. IV. **LUCIUS CASSIUS** a Roman lawyer and judge, famous for the severity of his decisions, whence all magistrates of extreme stringency came to be known as *Cassiani judices*, as is mentioned by Cicero in his defence of Roscius. V. **TITUS CASSIUS SEVERUS**, a Roman orator of considerable eloquence and great satirical powers, exiled by Augustus to the island of Seriphus, where he died in extreme misery.

**CASSIUS**, **PURPLE** or, a pigment used for coloring porcelain and glass by fusing it with these substances. It is a precipitate obtained by adding proto-chloride of tin to a solution of chloride of gold. The purple powder thrown down is an obscure compound of sesquioxide of tin and oxide of gold. It contains of metallic gold 89.82 per cent. Its production is a test of the presence of protoxide of tin.

**CASSOCK**, a close garment resembling a long frock-coat, with a single upright collar, worn under the surplice by clergymen of the Roman Catholic and Anglican churches. In the Roman church it varies in color, being black for priests, purple for bishops, scarlet for cardinals, and white for popes. In the Anglican church it is always black, and worn by all the 8 orders of the clergy.

**CASSOWARY** (*casuarus emu*, Latham), a bird of the ostrich family, the only species of the genus. The bill of the cassowary is long, compressed, and curved to the tip, the upper mandible overlapping the under. The wings consist of 5 strong rounded shafts without webs; the tail is not apparent; the tarsi are long and robust, and covered with large scales; the toes are 3 in number, all directed forward; the inner toe is armed with a very long powerful claw. The head and base of the bill are surmounted by an elevated compressed casque, or bony helmet; the head and neck are denuded of feathers, the skin being of a blue and violet color, with 2 fleshy wattles in front. It is a heavy massive bird, about 5 feet high; the plumage is of a blackish color, the feathers being loose, and resembling delicate hairs; the feathers which take the place of the tail are pendent. The cassowary is a stupid, gluttonous

bird, living on fruits, herbs, and occasionally on small animals; it is incapable of flight from the imperfect development of the wings, but it runs with great rapidity, and defends itself by means of its powerful feet. It lives in pairs in the forests of the Moluccas, of New Guinea, and other islands in the Indian archipelago; in some places it is domesticated. The female lays 8 greenish spotted eggs, on the bare ground, on which she sits during the night for a month; the young are of a red color, mixed with grayish. The cassowary, though it approaches the structure of common birds in the shortness of the intestines, and in the want of the stomachal sac between the crop and the gizzard, belongs evidently to the ostrich type, characterized by massive size, absence of wings, strength of lower extremities, flattened breast bone, and hairy nature of the feathers.

**CASTALIA**, a fountain at the foot of Mount Parnassus, near the temple of Apollo, at Delphi, in Phocia. It was, like the mountain, sacred to Apollo and the Muses, which were therefore called Castalides. In its sweet waters the Pythia used to bathe, before delivering the oracles of the god; it was regarded as a source of inspiration for poets, and had its name from Castalia, the daughter of Achelous, who, being pursued by Apollo, threw herself into the fountain.

**CASTALIO, Sébastien**, a French theologian, born in Dauphiny in 1515, died in Basel, Dec. 20, 1568. His original name was Châteillon. Through the influence of Calvin he was made professor of classical literature at Geneva. Having quarrelled with the reformer, who caused his banishment in 1544, he repaired to Basel, where he taught the Greek language; but as his stipend did not suffice to support his numerous family, he was compelled to employ part of his time in agricultural labors. He made a Latin translation of the Bible, the best edition of which is in folio, Basel 1578. He defended the right of free discussion in a collection of maxims compiled from various sources.

**CASTANETS**, a species of rattling instrument, much used in Spain and southern France as an accompaniment to dancing. They derive their name from the chestnut wood out of which the Spanish made them, and are of considerable antiquity, having been introduced into Europe from the East. Two small pieces of hard wood, of hollow form, and fitting together like the halves of a nutshell, are fastened by a band to each thumb, and the action of the fingers upon them produces the sharp click or rattle which imparts such a sprightly character to the national dances of southern Europe. The castanets are sometimes employed in ballet music.

**CASTAÑOS, FRANCISCO XAVIER DE**, duke of Baylen, a Spanish general, born in Biscay in 1753, died in Madrid, Sept. 24, 1852. He studied the art of war in Prussia with his brother-in-law, Count O'Reilly. On his return to Spain, Godoy, the prince of peace, was the supreme ruler, and Castaños's opinions of this disgraceful favoritism

being loudly expressed, he was banished from Madrid. In 1808 he received the command of a division in Andalusia, and on July 19, he encountered the French army under Dupont, at Baylen. The battle commenced at 3 A. M., and lasted till noon, when the French were obliged to surrender; 18,000 were made prisoners of war; the Spaniards lost 1,000 men, the French 2,600. Castaños shortly afterward lost the battle of Tudela. In 1811 he was appointed to the Spanish army, coöperating with Lord Wellington, but, although he manfully supported the British in the battle of Vittoria, he was recalled from the army, and appointed to a civil office. After the restoration he was made captain-general of Catalonia in 1815, an appointment which he resigned, but again accepted in 1824. He was subsequently president of the council of Castile, and after Espartero's fall in 1843, became, for a time, the guardian of Queen Isabella.

**CASTBERG, PEDER ATKE**, founder of an asylum for deaf mutes at Copenhagen, born in Norway in 1789, died in 1823. After having studied medicine he travelled in Germany, France, and Italy, for the purpose of learning the most approved methods of teaching the deaf and dumb. He published several essays on the subject, and officiated first as professor, and afterward as director of the institution at Copenhagen.

**CASTE.** See **BRAHMA**, and **EGYPT**.

**CASTEGGIO** (anc. *Clastidium*), a Sardinian town in the province of Voghera; pop. 2,800. It was taken by Hannibal during the 2d Punic war, and the battle of Montebello, in which the French, under Lannes, routed the Austrians, was fought in this vicinity, June 9, 1800. Near the town is a remarkable spring, called *Fontana d'Annibale*, or Hannibal's spring.

**CASTELLAMARÉ**, or **CASTEL-A-MARE**, a seaport town in the province of Naples, on the S. E. side of the gulf, 17 m. S. E. from the city of Naples, with which, since 1839, it has been connected by a railway; pop. about 18,000. It is finely situated on the lower slopes of a hill, along a sheltered beach, and commands an extensive view of the bay of Naples from Vesuvius to Misenum. It is defended by 2 forts, and contains a royal palace, a cathedral, 5 churches, several convents, manufactories of linen, silk, and cotton cloth, 12 thermal and mineral springs, and a dock-yard where the large ships of the Neapolitan navy are built. It has acquired celebrity also as a summer resort, in consequence of the salubrity of its air and the beauty of its environs. Castellamare is built upon the site of the ancient Stabias, which, having been destroyed by Sylla during the civil wars, was afterward occupied principally by villas and pleasure grounds. It was here that the elder Pliny, wishing to approach as near as possible to Vesuvius, during the eruption which overwhelmed Herculaneum and Pompeii, met his death, A. D. 79.

**CASTELLANE. ESPRIT VICTOR ÉLISABETH**

**BONIFACE**, count, marshal of France, born in Paris, March 21, 1788. He entered the army as a private in 1804; had reached the rank of captain in 1810; distinguished himself in the Russian campaign, and was made colonel. On the fall of the empire, he joined the Bourbons; served as brigadier-general during the campaign in Spain; having supported an opposition candidate, he was dismissed in 1830; on the outbreak of the revolution he reentered the army and assisted in the siege of Antwerp; in 1837 he was made a peer, and served a few months in Africa. During the revolution of 1848, he officiated for some time as military commander at Rouen. Under the presidency of Louis Napoleon he was appointed to the military command of Bordeaux in 1849, and to that of Lyons in 1850. He was evidently in the secret of the projected *coup d'état* of Dec. 2, 1851, having beforehand taken measures to subdue by force, if needed, the republican population of Lyons. As a reward for his services he was made senator and eventually marshal of France.

**CASTELLI**, **IGNAZ FRIEDRICH**, a popular Viennese dramatist, born May 6, 1781. He was educated for the law, but following his inclination for the drama, he gained access to the orchestras of theatres as a player of the violin. His circumstances compelling him to look out for some means of support, he accepted various subordinate offices, but using his leisure in composing patriotic songs for the Austrian army, he was brought into favorable notice. His songs having given umbrage to Napoleon, he fled to Hungary. In 1815 he accompanied Count Oavriani as secretary to Paris, and afterward he served in the same capacity with Baron Münch von Bellinghausen in Upper Italy. In 1840 he retired with a pension and the office of state librarian, and has since resided at his estate near Lilienfeld. The author of many poems, popular songs, and miscellaneous writings, he was at various times connected with the press of Vienna, but he is best known by his voluminous productions for the stage. Over 100 plays, partly adapted from the French, partly original, are attributed to him. In 1848, more than 100,000 copies of his political pamphlets, in favor of the revolution, found eager purchasers.

**CASTI**, **GIAMBATTISTA**, an Italian poet, born in 1721, died in Paris, Feb. 6, 1803. He officiated for some time as professor in the seminary of Montefiascone, and having afterward enlisted the sympathies of an Austrian nobleman, he was presented to Joseph II. and spent several years as unpaid attaché to foreign embassies, ingratiating himself into the favor of Catharine of Russia and of other potentates. At the death of Metastasio, he received the appointment of poet laureate at the court of Vienna, with a salary of \$1,500, but relinquished this office after the death of the emperor Joseph, and spent the last 20 years of his life in Paris. In early life he had written 18 poetical tales, and afterward

added 30 more, making altogether 48, published in Paris in 1804, under the title of *Novelle galanti*, which are all more or less attractive in style, but loose in morals. His fame depends on a satirical poem, *Gli animali parlanti*, in which he contrived to exhibit, under an allegorical veil, the blemishes of various political systems. He commenced the poem in Vienna, in 1794, continued it in Florence, and completed it in Paris, where its original publication in 1803 was followed by several editions in Italy, by French, German, and Spanish translations, and also by a free and abridged English version. Beside some other poems, he produced several burlesque operas, some of which were very successful.

**CASTIGLIONE**, one of the new agricultural settlements in the province of Algiers, Algeria, established by the French government in accordance with a decree passed by the national assembly, Feb. 11, 1851. It is situated on the shores of the sea near the town of Koleah, in the plain of the Metidja, and on the road from Ocherchell to Algiers. The plantations that have been established since that time are in a flourishing condition, the soil being extremely fertile and peculiarly well adapted for the cultivation of tobacco.

**CASTIGLIONE**, a village of Italy, Comarca di Roma, near the lake of Gabii. It occupies the site of the ancient city of Gabii, and is rich in remains of antiquity. Old walls, portions of a temple of Juno, a Grecian theatre, and an aqueduct, are among its most interesting ruins. The name of many places in various parts of Italy, beside the Calabrian village destroyed by an earthquake in Oct. 1835.

**CASTIGLIONE**, **I. BALDASSARE**, an Italian statesman and author, born at Casatico, near Mantua, Dec. 6, 1478, died at Toledo, in Spain, Feb. 2, 1529. His career commenced in the military service of the duke of Milan, but he is better known as a diplomatist, in which capacity he was intrusted by the dukes of Urbino with important missions to Henry VII. of England, Louis XII. of France, and Pope Leo X. He became a favorite of this accomplished pontiff, and was regarded as one of the ornaments of his court. Clement VII. subsequently sent him as nuncio to Madrid, but shortly after his arrival Rome was sacked by the imperialists under the constable Bourbon. It was not possible for Castiglione to have foreseen or prevented this catastrophe, but the reproaches of those who insinuated that he had been neglectful of the interests of his country preyed upon his mind and hastened his end. He was universally lamented, and the emperor, Charles V., in announcing his death, exclaimed: "One of the truest gentlemen in Christendom is dead." Castiglione was not a voluminous writer, but his published works are models of composition. His work entitled *Il libro del Cortegiano* was first printed by Aldus in 1528, and a version was published in London in 1737. **II. CARLO OTTAVIO**, count, a philologist and antiquary, born in Milan toward the close of the 18th century. In conjunction

with Angelo Mai, he published an edition of Ulphilas's Gothic translation of St. Paul's Epistles, which Mai had discovered among the palimpsests of the Ambrosian library. Most of the dissertations which enrich the work, the publication of which extended through 20 years, were written by Castiglione.

III. GIOVANNI BENEDETTO, called IL GRECCHETTO, a Genoese painter and engraver, born in Genoa in 1616, died in Mantua in 1670. He was a pupil of Paggi Ferrari, and, according to some authorities, of Vandyke, and gained a high reputation as a historical, landscape, and portrait painter, and also as an engraver. His forte, however, was animal painting. Many of his pictures are in the museum at Florence, and in the Louvre at Paris; and some have found their way to Venice, Milan, Munich, and Dresden. IV. An Italian artist and missionary, born in 1698, died in Peking in 1768. He was thoroughly instructed in the art of painting, but joining the order of the Jesuits, Peking was assigned as his field of his labors, and there he passed the greater part of his life, in favor with several successive emperors. He made his art an accessory to his religious labors, and the emperor Kien-Long erected several palaces from designs furnished by him. He is said to have frequently exerted his influence to protect Christians from persecution.

CASTIGLIONE, LAKE OF, in Tuscany, province of Grossetto, is about 10 m. long and from 1 to 3 wide. It was formerly much larger, but has been reduced to its present size by draining. It receives the Bruna and other small rivers, and communicates with the Mediterranean by a short channel. Its banks are unhealthy and mostly depopulated. It has been made to communicate by a canal with the Ombrone, the mingling with the waters of this river being supposed to make the lake more salubrious.

CASTIGLIONE DELLE STIVIERE, a town of Lombardy, in the legation of Mantua; pop. 1,400. It contains several churches and a ruined castle. It is memorable for a victory of the French over the imperial forces, Sept. 9, 1706, and for the decisive victory gained here by the French over the Austrians, Aug. 5, 1796, whence Marshal Augereau acquired the title of duke of Castiglione.

CASTIGLIONE FIORENTINO, in the district of Arezzo, Tuscany, is a town with a pop. of 5,700, with a theological seminary, a bishop's college, a Latin school, and orphan asylum, and is especially noted for the rearing of silkworms.

CASTILE (Sp. *Castilla*), an ancient kingdom of Spain, situated in the centre of the peninsula, and divided into Old and New Castile.—OLD CASTILE is the more northerly of the two; area, 4,262 sq. m.; pop. in 1857, about 1,250,000. It is of very irregular shape, stretching from S. W. to N. E. It is bounded N. by the bay of Biscay, E. by Aragon and Navarre, S. and S. E. by New Castile, W. and S. W. by Leon. In the N. the Cantabrian range of the Pyrénées runs

across the province. On the S. it is divided from New Castile by the Sierra de Guadarrama, the Somosierra, and a continuing chain, which, under different names, forms the entire S. and E. boundary. The rivers of Castile are the Duero in part of its course, its affluent the Ucero in the centre, and part of the Ebro on the N. There are numerous minor streams: the Riaza, Piron, Oega, Eresma, Adaja, tributaries of the Duero; the Neva, the Oca, the Tiron, and the Oja, affluents of the Ebro. These rivers are blustering torrents after rains, but in summer many of them are mere water-courses. The climate is dry and hot in the summer, dry and cold in the winter. The plains are almost deserts, whose vegetation affords but a scanty pasturage, and disappears entirely under the summer sun. On the seacoast, and in the mountains, valleys, and hill-slopes, nature is much less sterile. Old Castile includes the provinces of Avila, Burgos, Logroño, Santander, Boria, and Segovia. The general occupation of the people in the interior is agriculture and grazing. In the towns some inferior manufactures are carried on. Corn and cattle are shipped from Santander.—NEW CASTILE contains an area of 80,872 sq. m.; pop. in 1857, about 1,800,000. It is much the larger division of the two, and from its contiguity to the Moorish kingdom, was the more important. It is bounded on the N., as we have seen, by the Somosierra, Sierra de Guadarrama, &c.; on the S. the lofty and rugged range of the Sierra Morena separates it from Andalusia. The province is intersected by the Sierra Molina range. Minerals abound, and the great quicksilver mine of Almaden is in the province. The Tagus, and various tributaries, Tajafia, Henares, Jarama, Guadarrama and Alberche, Oedron and Algodar, with many small streams, flow through the province, in the plains N. of the Sierra Molina. The plains S. of the Molina are watered by the Guadiana and its affluents. The climate is the same as that of Old Castile. Large crops of wheat are raised, and the mountain slopes afford abundant pasturage. In the S. are the extensive plains of La Mancha. The inhabitants of New Castile are chiefly engaged in agricultural and pastoral pursuits. The vine is cultivated, and the fine wine of Val de Peñas comes from the district of that name. Olives and oil, saffron, honey, and hemp are produced in considerable quantities. Woollens, paper, linen, cotton, and silk are manufactured. The province contains Madrid, the capital of Spain, the city of Toledo, with Alcala, Arganda, Aranjuez, Almaden, Almagro, Ciudad Real, Cuenca, Guadalajara, Molina, Requena, Talavera, and Val de Peñas. New Castile is now divided into the provinces of Ciudad Real (including the greater part of La Mancha), Cuenca, Guadalajara, Madrid, and Toledo.

CASTILLA, RAMON, president of Peru, born at Tarapaca in 1798, served in the Spanish cavalry until 1821, when Gen. San Martin proclaimed Peruvian independence. Castilla, then



a lieutenant, joined the liberating army, in which he distinguished himself. He was elected president of Peru in 1845. At the expiration of his term of office, in 1851, he was succeeded by Gen. José Rufino Echenique, but usurped the power in 1855, and was, by a majority of 70,874 votes, reelected to the presidency in Aug. 1858.

**CASTILLEJO, CRISTÓBAL**, a Spanish poet, born at Ciudad Rodrigo toward the close of the 15th century, died in Vienna, June 12, 1556 (according to other authorities in 1596), where his tomb has recently been discovered in the *Neukloster Kirche*. Attached from the age of 15 to Ferdinand, the younger brother of Charles V., and afterward emperor of Germany, he subsequently officiated as secretary to that prince. He was a zealous champion of the old Spanish poets, and a decided opponent of the new Italian school. His poetry generally reflects a genial and light-hearted nature. In his imitations of the old masters he exhibits a superior taste, and in his attack upon the imitators of the Italian poets, whom he called *Petrarquistas*, considerable spirit. One of his most fanciful and characteristic poems is entitled, "Transformation of a Drunkard into a Moequito." His works were published in Antwerp in 1598, in Madrid in 1600, and were reprinted in Fernandez' "Collection of Spanish Poets," 1792.

**CASTILLO, JOSÉ MARIA DEL**, a South American patriot, originally a lawyer, was a member of the assembly of notables convened at Bogota by the Spanish viceroy on the breaking out of the Quito insurrection in 1809. Next he appears as a member of the constituent college which met at Bogota in 1811, and organized the state of Cundinamarca. In 1812 he represented the province of Tunja in the congress at Neyva; in 1813 was commissioned as acting governor of the province; and was appointed joint commissioner with Don J. F. Madrid to treat with Narino. In 1816, when Bogota again fell into the hands of the Spaniards, he was sent prisoner to Omas, in Guatemala. Subsequently he became secretary of the treasury in Colombia. In this position he continued till 1828, when, being elected president of the Ocaña convention, he was one of those who vacated their seats when the majority refused to confer new powers on Bolivar. For this service the dictator rewarded him (Aug. 1828) by the appointment of president of the council of ministers and of the council of state.

**CASTINE**, the capital of Hancock co., Me., on the E. bank of the Penobscot, 84 m. below Bangor. It derives its name from the baron de Castine, a French nobleman, by whom it was settled in 1667, in company with a French colony, who afterward abandoned it in consequence of border wars with the Indians and English colonists. In 1760 it was settled by the English. The village is beautifully situated on a peninsula, enclosing a spacious harbor always accessible to vessels of the largest class. Its inhabitants are chiefly engaged in ship build-

ing and fisheries. It has 3 churches and 8 schools. Pop. in 1850, 1,260.

**CASTING**. The casting or founding of metals is an art that has been practised from the earliest periods, and with more or less skill by various nations. Among the spoils of the Midianites mentioned in the book of Numbers xxxi. 22, 6 metals, gold, silver, brass, iron, tin, and lead, are named, from which it would appear that methods of working them were known 1,450 years before the Christian era. And in the 28th chapter of Job, which is supposed to have been written at a still earlier period, mention is made of silver and gold and of brass molten out of the stone. The description of the melting and casting of the different metals and their alloys properly includes an account of the furnaces used, as well as of the materials employed, and the various processes adopted. But the subject is too varied, and requires for its complete explanation too many figures and illustrations, to admit here of more than a very general outline. It includes the methods employed in the construction of huge cannon of cast iron, that require for each one several large furnaces to furnish the number of tons of molten iron to fill its mould, or of the still larger bells, of which several are recorded that consumed from 50 to 100 tons of bronze, and one, the great bell of Moscow, about double the larger quantity named. The construction of the most elaborate works of art in the form of statues of bronze, and of the most delicate trinkets, like those of the celebrated Berlin iron ware, of some of the finer parts of which nearly 10,000 pieces are required to weigh a pound, is included in this same process; and so are the difficult and expensive manufacture of the metallic specula for reflecting telescopes, the cheap production of the brass work of Connecticut clocks, the extensive and greatly perfected operations of the stove foundries of Albany and Troy, the preservation in metal of the delicate forms of insects and leaves of plants, and lastly the preparation of the great plates of glass used for mirrors and windows. These operations require first their appropriate furnaces for melting the metals, as cupola and reverberatory furnaces, where large quantities are required, and the small brass furnaces for work in this material. In the larger furnaces the materials to be melted are exposed to the direct action of the burning fuel; in the smaller operations crucibles or pots are employed, in which they are placed, and thus kept while melting unmixed with the burning matters. The moulds into which the molten fluid is poured are made of metal, sand, or other materials. If of sand, as is ordinarily the case for castings of any considerable dimensions, patterns are required, which must have the exact figure of the object desired. These are usually of wood, sometimes of metal, and being often of complicated shapes they demand the skill of experienced workmen. Flasks or boxes for holding the moulding sand, materials for the cores, ladles for pouring,

cranes for moving the heavy castings, or sometimes the large pots of melted metal from the furnace to the mould, and stoves for drying thoroughly the moulds that require this preparation, complete the list of the most essential articles, beside workmen's tools, required for a foundry. The cupola furnaces which are commonly employed for the second fusion of iron, are probably so named from a cupola or dome which is sometimes placed over them to lead the smoke to the chimney. They generally consist of a cylinder of cast or boiler plate iron placed erect upon a brickwork foundation, and lined with fire brick or refractory sand and clay. Their dimensions vary according as they are intended for large or small operations. The largest are made to melt and hold about 12 tons of iron, and several such are placed in large establishments side by side. One-tenth of this capacity is more common. At the bottom is an aperture sufficiently large for the extraction of the cinders, when this is required. It is closed with a guard-plate, which is provided with an aperture for the flow of the metal, and this is stopped with a lump of moistened clay after the fire has well started, and before the iron has begun to melt. A number of smaller holes are made up the back for the introduction of the blast, the lowest being first used, and then closed with clay as the blast pipe is moved to the next hole above, in consequence of the rising of the melted iron in the furnace. The blast is driven by the fan blower. The furnace is charged at the top with charcoal, coke, or anthracite, and after the contents are well fired by the blast, the pig iron, previously selected with especial reference to the quality of casting required, is thrown in with other charges of fuel. The pieces should not weigh more than 12 to 16 lbs. each; scrap iron is mixed with the pig metal, but care is always taken to so apportion it that the product shall be of the particular strength or fluidity desired. A little limestone is added to facilitate the fusion, and the separation of the impurities of the iron. Castings are made by second fusion in the cupola furnace, and not so commonly directly from the blast furnace, for the reason that qualities are often desired which are only obtained by mixture of pig iron from different localities. It is for the peculiar adaptation of Scotch pig to give both strength and fluidity that it is in demand for mixing with other cheaper iron. The brittle pig metal made from bog ores, which may be so weak as by falling to break into several pieces, is in good demand for fine castings for its great fluidity, running into the minutest parts of the mould, and retaining its faintest impressions. Blast furnaces, too, cannot always be depended upon for any length of time to produce the same quality of metal from the ores; and consequently, after preparing the moulds and letting out the iron, it may prove altogether unsuitable for the particular articles. Nor is the capacity of their hearth large enough to produce at a casting so much iron as is often required for a

single article. Still, in many places they are advantageously employed to some extent, and good castings are very conveniently made by the first fusion.—When sufficient melted iron has collected in the cupola, the hole is opened at the bottom, and it is allowed to flow out into ladles which are carried by one man, or into larger ones, holding 800 or 400 lbs., carried by 8 to 5 men, or into a crane-ladle, in which 5 or 6 tons may be moved to the moulds. For heavy castings, the metal is often run, as from the blast furnace, in a channel in the sand, called a sow, leading to the moulds. These moulds in the case of the blast furnace may be only the pig-bed in which the depressions for the pigs branch off at right angles from the leading mother channel. The metal flowing through and filling these open channels presents at night particularly a most beautiful appearance; as it gushes out from the furnace in a stream of liquid fire, its intensely heated particles meeting the oxygen of the air fly upward in the most brilliant scintillations. But if, unfortunately, the stream comes in contact with sand too moist, violent action then takes place, as the moisture is suddenly converted into steam, and this is decomposed by the heated iron; the whole casting house is filled with the liquid particles thrown in every direction, and sparkling with fearful magnificence as they are consumed in the air. A slight accident sometimes gives rise to one of these catastrophes, which may be attended with the most serious consequences to workmen and property. But flowing with its ordinary quietness, the metal is covered with wrinkling lines, which move rapidly over its surfaces and gradually become still as it solidifies.—The moulds, which are the next object of interest, may be made in the sand floor of the casting house, which has been filled in with the proper kind of sand for this purpose. This is light, fine, and loamy, and of a yellow color when new, but by the frequent addition of charcoal dust and other materials used in the moulding it gradually becomes dark-colored. It must also be too infusible to melt and adhere to the metal. In this, properly moistened with water, are imbedded the patterns of such articles as may be cast without a cover; and when the impression in the sand is perfectly made, the patterns are carefully taken out, and the imperfections of the sand-mould are skilfully smoothed and dressed over. Close moulds may be made of metal, and for repeating a great number of small castings, as of bullets or cannon balls, this is usually the case. They are commonly made in sand, either of the floor covered over with the upper half of a flask, or else in the sand included between the 4 sides of this flask or box, which has neither top nor bottom, except a loose board below and another above it. The flask is divided into 2 similar parts, which fit exactly one upon each other, and are fastened together by pins at the corners. The pattern is made in 2 parts, which accurately fit together to form

the whole figure; one part is imbedded in the sand of one portion of the flask, and the other so placed in the corresponding portion, that when the 2 are brought in contact and fastened, the exact figure of the object is left in the sand; just as when the 2 hemispheres of a bullet mould are brought together, the spherical cavity is made up between them. The little aperture through which the metal is introduced is made, as in the bullet mould, on the line joining the 2 parts, and is carefully impressed in the sand so that its sides shall bear the running of the metal. It is called the ingate, and serves also as a passage for the escape of the air in the mould. In large castings several of these are required; and in making use of them for pouring in the metal, it is necessary to pay particular attention to the escape of the air, that there is nothing to impede it; for if obstructed and the sand is too dense to allow of its passage through, it may cause the metal to be violently projected from the mould; or if bubbles of air remain shut in the metal, they render it porous and of uncertain strength. The object of the double flask is to admit of the moulding of all sides of a figure. Many objects of rather complicated shape may, by a little ingenuity, be so arranged as to be moulded in it without any projecting part having to pass under the sand, which would of course prevent the pattern being drawn out without breaking down the mould. If the shape is too complex to admit of this, the flask must consist of three pieces or more, so arranged as to admit of the moulding of all the parts without any portion being thus covered. Pieces of wood or brick, or sand properly moulded, are often used as cores to fill parts of the mould which in the casting are to be hollow. Over the face of the mould some light carbonaceous powder is sifted, which has the effect of giving a smooth face to the metal; in gold and silver casting the smoke of pitch or rosin is made to deposit a fine layer of soot for the same purpose. Red brick dust is often used as parting sand, to prevent the 2 parts of the mould from adhering together.—Patterns are the models of the object required, made usually of wood, and in the number of parts necessary for their perfect moulding. The wood should be thoroughly seasoned, and of the kinds least liable to change in form by warping or shrinking. White pine and mahogany, clear of all irregularities, are among the best. Their preparation is a distinct branch of the joiner's trade, calling for the exercise of no little ingenuity and skill. In consequence of the contraction of iron castings as they cool, the patterns should be correspondingly large. The allowance is made by the use of a contraction rule, in which the divisions are  $\frac{1}{4}$  of an inch in a foot, or  $\frac{1}{16}$ , longer than those they represent, this being the usual proportion of shrinkage. Brass shrinks 3 times as much as iron. The pattern designer is obliged always to have reference to the effect of unequal rates of cooling in the large and small parts of the castings, and

ingenious expedients are adopted to prevent the injury that might arise from the latter becoming set while the larger parts are still expanded from their semi-fluid condition. But for these the castings might break from irregular construction while yet lying in the sand. From the fact that the castings are almost exact counterparts of the patterns, the weight of the one should be proportional to that of the other; and as the pine wood used is about  $\frac{1}{14}$  the weight of the same quantity of iron, the casting should weigh 14 times as much as the pattern. Wood patterns, when required to be of large size, are often built up hollow, of pieces fitted together and glued. But for very large castings, as those for steam and blowing cylinders, which may be from 5 to 10 feet in diameter, a hollow core of loam or of brick work is so constructed as to fit in the cavity in the sand, leaving the space for the metal between it and the wall of this cavity. Around the top of the mould a circular channel is made for the flow of the metal, and a large number of ingates lead from this down into the space to be filled; as many air-holes are also made for the escape of the air. The channel is supplied by the branches coming from each furnace, and the flow of metal in each one of these is controlled by a workman who uses his shovel to make a temporary dam. At the word being given "Up shovels" the currents flow in and the mould is soon filled. The hollow core, strongly braced within to withstand the pressure of the liquid metal, must, as soon as this sets in the commencement of cooling, be broken down, that no restraint be laid upon the natural shrinkage. To accomplish this, the workmen descend into the highly heated cavity, by turns, each one working a minute or so at a time, and the core is soon removed. The rate at which the objects are allowed to cool affects their strength and hardness; the former being increased by slow, and the latter by rapid cooling: what is called chilled iron, is iron cast in cold metallic moulds. The castings when removed from the sand are dressed by breaking off the runners that formed in the ingates, and their surfaces are cleaned of the crust of sand which covers them. An ingenious method of casting iron pipes has been practised for some time in this country, particularly in Baltimore. The metal is poured into a cast-iron tubular case, which serves as an outer mould. Being made to rotate rapidly on its axis, the fluid iron within is thrown around and assumes the tubular form, the thickness corresponding to the quantity of metal introduced.—It may be interesting to notice the methods employed for moulding and casting the delicate figures of insects and small parts of plants, and also of large statues. An insect, or a leaf of a plant, designed to be preserved in a cast figure, is made to serve for its own pattern. It is fixed by threads in the centre of a small box, and a wire or two are placed to connect it with the outside. Fine river silt or mud is plastered over it, by throwing it in a moist

state into the box and swinging this about. Coarser materials of the same nature are added in the same way till the box is filled. It is then thoroughly dried, the wires are withdrawn, and the mould is baked, so as to reduce the object to ashes. These are then blown out, and the mould is ready to be filled. An improved process is to mould the object in wax, and having incrustated this with plaster of Paris, subject the whole to heat sufficient to melt the wax and cause it to be absorbed into the plaster. Cast plates of brass designed for printing the impressions of ferns and such objects are prepared by the ingenious process of Dr. Branson, of Sheffield, England, as follows: A clean sheet of gutta percha, softened by boiling, is laid flat upon a smooth plate of metal, and dusted over with bronze powder. On this is laid the frond or leaf, and it is then covered with another metallic plate and subjected to a moderate pressure. When the gutta percha is cold, it is found to be impressed with a perfect copy of the leaf; and from this a cast in brass is taken, which, when burnished, is ready for the printer. The prints thus obtained, if the ink be skilfully mixed to the right tint, are said to be hardly distinguishable from the plant itself.—In casting statues, a hole is dug in the sand, bearing some resemblance to the intended figure. The inside of this pit is lined with brick or stone, and a small furnace is sunk in the bottom. Over this furnace is placed an iron grating, which supports the mould. This is formed of the core, the wax, and the outer shell. The inner mass or core of clay and rough plaster represents the general contour of the form required. It is strengthened by iron bars on the inside, and on the outside is covered with wax, the thickness of which corresponds with the intended thickness of the metal. This, however, is sometimes formed in separate pieces upon models, and brought to the core in sections. A number of tubular passages from the wax to the surface are left, to serve as ingates and for the escape of air. An outer coating is next laid over the wax, formed of layers of different compositions. The first is of clay and old white crucibles finely powdered, and mixed with water to about the consistency of paint. This is applied 7 or 8 times. For the 2d layer, the same preparation, to which is added horse dung and earth, is used, and for the 3d the dung and earth alone. When this shell is completed, the whole is encircled with bands of iron. A moderate fire is then made in the furnace, for the purpose of drying it, as well as for melting the wax, which runs out through pipes arranged for the purpose. These are immediately closed with earth. When this is done, the square pit is filled in all around the mould with loose bricks, and the fire is increased in order that the mould may be thoroughly heated and dried. This being accomplished, the fire is extinguished, and the whole left to cool, when the bricks are removed, and their place filled with earth. The metal is now melted in a large furnace con-

structed by the side of the pit. A small tube is laid for conveying it into a large basin over the mould, into the bottom of which all the large branches of the spouts or casts are inserted, by which it is led into the various parts of the mould. These channels are closed with long iron rods, which are withdrawn only when the vessel is full enough of the metal for it to run into all of them at the same time. The whole of the furnace is then opened, and the mould is instantly filled. The casting is now complete, the mould and earth are removed, the core and the iron bars, except such as are required to strengthen the figure, are taken out through an aperture left in the brass for that purpose, which is afterward soldered, and the figure is ready for the finishing touches of the sculptor.—The value of the exports of castings of iron, manufactured in the United States, during the year ending June 30, 1857, was: to Canada, \$133,946; other British American possessions, \$75,172; British Australia, \$37,562; Cuba, \$12,868; England, \$8,981; British Guiana, \$5,286; Chili, \$5,167; other countries, \$11,438: total \$289,965.—See also BELL, CANNON, and FOUNDRY.

**CASTLE**, a fortification of the middle ages. The word is derived from the Latin *castellum*, although the castellum of the classic writers had little or nothing in common with the superb castellated edifices of Norman and Gothic architecture. The castellum of the Romans seems, at times, to have signified something of the nature of a system of detached forts or bastions, connected or unconnected with curtains, made sometimes of timber, sometimes of stone, and not unfrequently of a combination of the 2 materials; the stone work being compacted with heavy beams of timber, which were supposed to increase the strength of the edifice, as they were less liable to be brought down by the vibratory motion given to the walls by the repeated blows of the battering ram. At other times, the word castellum was used by the Romans to signify a fortified town, and that more frequently in the provinces, particularly in Gaul, than elsewhere; most of the French towns which have now the prefix of *château*, as Châteaudun, Château Thierry, and the like, being built on the site of ancient Roman *castella*; just as the English villages and towns having the suffix of *cester*, *caster*, or *chester*, as Doncaster, Gloucester, Colchester, are the *locum tenentes* of ancient encampments, *castra*. Lastly, castellum was often used by the Romans as a term for the large buildings of masonry used as fountains, or rather as the distributing reservoirs of their aqueducts, many of which, in fact, had very nearly the character of the simplest form of the small castle of the middle ages, some of which are still to be seen in Scotland, consisting merely of a square pile of masonry, having 4 flat curtains, with 4 projecting round or square towers flanking the curtains, 1 at each corner of the building, and rising considerably above the battlements of the main

pile, so as to command the platforms, if carried by escalade. Roman towers are almost invariably made of brick, joined by cement or mortar, which with the lapse of time became harder than the brick it compacted, or than stone itself. When they used stone, it seems to have been in irregular works, of great extent, such as the *callum* of Antoninus, or Severus, partaking of the nature of earthworks rather than of regular defences of masonry. The Saxon castles in general were of very inferior architecture and design; they had rarely the advantage of elevated position, or of commanding height in themselves. In fact, the Saxons were not, it would seem, at any time a castle-building race, nor did they affect lofty sites or eminences for their dwellings or defences. Their favorite localities for building purposes, so far as can be judged from the few old Saxon sites, such as Temple-Newaham and a few others in the north of England, and in the fen counties of Cambridge, Huntingdon, and Lincolnshire, were nearly the same as those affected by the monks after the conquest, many of whom were of the ancient Anglo-Saxon race—namely, low, rich meadow lands, suitable for the rearing and fattening of the flocks and herds, in which they took so much pride and pleasure, and in which so large a portion of their wealth consisted, lying by the margin of still sheets of water, containing carp and tench as fat as their own oxen, ever haunted by innumerable flocks of wild fowl, and over-shadowed by dark woodlands, as old as the days of the heptarchy, or perhaps as those of Cæsar. In such places, they would build their houses of strength (one could hardly call them castles), long, low, flat-roofed, rectangular buildings, with no attempt at ornament, and little at defence, beyond the smallness of the narrow round-topped windows and low-browed doorways, with here and there a low, stubborn, round tower at an angle, sometimes a moat drawn round the base of the building itself, and defended by an exterior palisade of timber, but without any system of flanking walls or defences, one defending and commanding the other, as was the case in the elaborate fortifications afterward erected everywhere throughout the land by the victorious Normans for the protection of their scanty numbers. It would seem, in fact, that neither during the Roman occupation of Britannia, nor afterward, while the Christianized and Latinized Cambro-Britons held it, nor yet after that, in the Anglo-Saxon times, while there were Anglo-Saxons in England, were there any places of strength in the kingdom. A single battle, won by a few charges of mail-clad horsemen, laid the whole kingdom prostrate at the feet of William the Norman, who portioned out the realm among his landless followers. Everywhere, instantly after the subjugation of the land, on every estate arose the tall and castellated dwellings in which,—from that day downward until the conclusion of the wars

of the Roses and the accession of the Tudors, when a new style of architecture, indicating a milder state of society and a cessation of domestic warfare, succeeded the old castellated type,—resided with their families, secure amid the din of war, the landed aristocracy and nobles of the land. Of every variety of size, from the small single keep, or tower, perched on some bold summit, to the vast baronial castles, such as those of Framlingham, or Rising, or Kenilworth, or Leicester, covering acres of ground within the precincts of their embattled walls and deep girdling moats, they had all similar forms, one common system of defences, whether on elevated ground or amid level scenery; and, unless captured by surprise, in a sudden onslaught, or betrayed by the ill faith of some one within the walls, could all, for many days, resist a feudal army; the best artillery of which, consisting only of catapults and machinery for casting stones, could effect nothing against stone walls of 10 or 12 feet in thickness, and 100 feet or more in height, from every shot hole, crenelle and bartizan of which, arrows and cross-bow bolts fell like hail on the exposed persons of the assailants; while it mattered little to the defenders of the castle whether or no, in the absence of artillery adequate to reduce it, the edifice might or might not be commanded by eminences of superior height, provided only that they were not within near arrow shot.—The system of defence was a series of curtains of great strength and height, forming the circuit of the defences, with large square flanking towers at short intervals, serving as bastions to enfilade the curtains, and close at their base a wide, deep moat only to be crossed by means of a drawbridge, and access to that drawbridge defended, on the outer side, by what was called a barbican, serving as what we should now call a bridge head, which was in fact neither more nor less than a *2d* castle of inferior height to the interior fortress, open to its shot on the inner side toward the moat, so as to be untenable against its garrison, yet strong with curtains, towers, flankers, and sometimes, again, with a narrower exterior fosse and esplanade, and an exterior palisade of wood, called the barriers, in the attack of which and their defence were often performed some of the most desperate and glorious feats of arms recorded by the chroniclers and minstrels of the middle ages. In many of the larger and more powerful feudal fortresses, such as that of Framlingham in Suffolk, of Pleaisles Tours and Loches in France, and many others in England, France, and the Low Countries, within the exterior precincts and moat, there were a *2d* and *3d* wet ditch, a *2d* and *3d* wall, each loftier than that without, and commanding it from the base to the summit; and all these arranged in such a way that the assailants, having mastered the 1st gate and entered the 1st precinct, would necessarily be compelled to make a flank movement round half the circumference of the place, shut up be-

tween a high inner wall and an impassable moat, under shot from the 2d wall, before reaching the 2d bridge and gateway. Add to this, that, the 2d wall gained, a similar task remained before carrying the 3d; and when the precincts should be all forced, one by one, the key of the whole, in the shape of the keep or donjon, a pile of masonry almost solid, and of height almost impregnable, consisting principally of a huge square tower of 200 feet or more in height, with a flanking turret at each corner, not a window larger than a shot hole within reach of the longest ladder, and but one door, placed on the 3d floor above the ground, accessible only by an exterior stair of stone, "so narrow where one but goes abreast," exposed to the long-bow shafts, and cross-bow bolts, and floods of melted pitch and scalding oil from the battlements and bartizans, frowned its defiance or laughed its scorn on all beholders. Such are the castles of the middle ages, as they stand in thousands, still majestic in their ruins, amid the pleasant scenery of the rich corn lands and pastures and green woods of merry England; amid the vineyards and fertile plains of France; amid the marshy pastures of the Low Countries; along the steepes of the Rhine, the passes of the Alps, of the Black forest, of the Tyrol, of the Apennines, and of the mountain ridges looking down on the Danube, relics and landmarks of a wild and iron age, the abodes of men as wild and as iron as the epoch in which they flourished.

**CASTLE CAREY**, a market town and parish of Somersetshire, England, on the Great Western railroad, 129½ m. from London. It contains a manor-house in which Charles II. took refuge after the battle of Worcester.

**CASTLE CONNEL**, or **STRADEALLY**, a town and parish of Munster, Ireland; pop. of the town, 1,106. It is beautifully situated on the Shannon, near the falls of Doonass, and is much resorted to in summer by the inhabitants of Limerick for its chalybeate springs. Its castle, formerly the residence of the O'Briens, kings of Munster, was destroyed during the siege of Limerick.

**CASTLE DERMOT**, or **TRISTLEDERMOT**, an ancient town and parish of Leinster, Ireland; pop. of the town, 1,516. It is situated on the Lear, an affluent of the Barrow, and was formerly the residence of the Dermots, kings of Leinster. It contains a great number of interesting antiquities, among which are the ruins of a large cathedral, a church built by the first English settlers, a Franciscan monastery, a Norman arch, a square tower supposed to have been erected by the knights templars, the remains of a priory, a castle, and in the churchyard several curious crosses and a round tower.

**CASTLEREAGH**, **ROBERT HENRY STEWART**, viscount (second marquis of Londonderry, April 8, 1821), a British statesman, born at the family seat of Mount Stewart, in the county of Down, Ireland, June 18, 1769, died by his own hand at his seat of North-

Cray Place, county of Kent, England, Aug. 12, 1822. He attended the grammar-school at Ar-magh, and completed his education at Cambridge. In 1789 he offered himself as a candidate for the representation of the county of Down in the Irish house of commons, and was elected after a sharp contest, which is said to have cost his family over £25,000. In 1794 he was sent to the British house of commons, as a member for the borough of Tregony. After the dissolution of that house in May, 1796, he was again returned to the British parliament, which met in September of the same year, as member for Orford; but relinquishing his seat in July, 1797, he was reelected to the Irish parliament, as representative of the county of Down, and appointed keeper of the privy seal for Ireland. In the beginning of 1798, he became chief secretary to the lord lieutenant, and an Irish privy councillor. The rebellion which invited and accompanied the landing of Gen. Humbert in 1798, was crushed by Castlereagh, although there is reason to suppose that he was not a party to the remorseless cruelties practised by the Protestants, with the odium of which his name has been loaded. It was mainly through his instrumentality, that the act of union was passed. When this measure was consummated, Lord Castlereagh quitted the Irish government, execrated by the majority of his countrymen. The Orange or Protestant party, however, to which, both by personal opinions and by family connections, and residence in the north of Ireland, he belonged, looked upon him with far different sentiments; and their respect for his stanch adherence, at any cost, to the doctrine of Protestant supremacy in Ireland, was undoubtedly shared at that time by the majority of Englishmen. He represented his native county in the first imperial parliament, which assembled in Feb. 1801, and also in the second, which convened in September of the ensuing year. In the beginning of 1802 he was appointed a privy councillor of Great Britain, and president of the board of control. He retained that office after the retirement of Mr. Pitt, and throughout the Addington administration. In July, 1805, after Mr. Pitt's return to power, Lord Castlereagh joined his cabinet as secretary at war and for the colonies. Having lost his seat for Down, he was returned in 1806 for Borough-bridge; and relinquishing his office after Mr. Pitt's death, he was returned for the following parliament, which met in Dec. 1806, for the borough of Plympton Earle. He now went into opposition against Fox and Grenville, and attacked their peace policy. In 1807, upon the formation of the Portland cabinet, he again became secretary at war, and was reelected by his last constituency for the parliament which met in May of that year. While a member of this administration, he incurred the responsibility of the ill-advised Walcheren expedition, in reference to which Mr. Canning, his colleague and secretary for foreign affairs, assailed Lord Castle-

reagh with such warmth of personality, that a duel ensued between them in 1809, and both retired from office. Lord Castlereagh soon returned to the ministry, and assumed Mr. Canning's post, in which he gained a position so commanding, that on Mr. Perceval's death, in 1812, he had the confidence of the tory party, and was regarded as the ministerial leader in the house of commons. In Nov. 1812, he was once more returned for the county of Down, retaining that seat in the next 2 parliaments, which met in Aug. 1818, and in April, 1820. In 1814, as British plenipotentiary, he took part in the conferences of Chatillon, and was influential in persuading the allies not to lay down their arms, unless Napoleon agreed to limit France to the boundary of 1792. This Napoleon refused to do; and that great campaign was begun which ended in the capitulation of Paris, and the abdication of Napoleon. At first Lord Castlereagh's unappeasable hatred of Napoleon, or perhaps his political foresight, would not permit him to concur, in behalf of England, in the measure by which Napoleon was permitted to retain the title of emperor, and retire to Elba. After the treaty was signed, however, he reluctantly acceded to it. He took part in the congress of Vienna, and in the discussions which followed during the Hundred Days. Subsequently he supported George IV. in his schemes for getting rid of Queen Caroline, and was the author of the harsh measures for the repression of discontent caused by general distress and dearth of provisions. The struggles of the constitutionalists in Spain and Portugal called for active interference on the part of the holy alliance, and Lord Castlereagh was on the point of joining the congress of Verona, when he fell into a state of melancholy, in which he committed suicide by opening the carotid artery with a penknife. The coroner's jury which investigated the case declared the act to have been committed in a state of lunacy. Lord Castlereagh has been assailed with unsparing acrimony. As an orator, he was below mediocrity. But he had sound common sense, great moral courage, and unshaken firmness; and if he could not express his intentions fluently, he could march straight forward to their accomplishment. His correspondence was edited by his brother, the third marquis, in 1850.

CASTLETON, a post village and township of Rutland co., Vt., pop. 8,016, situated on Castleton river, at the intersection of the Rutland and Washington, and the Saratoga and Castleton railroads, which unite here with the Vermont and Canada lines. It is the seat of Castleton medical college, founded in 1818, and connected with Middlebury college.

CASTLETON, a village of Derbyshire, England, situated at the foot of a rugged eminence, on which stands Peak castle, an ancient stronghold erected by William Peveril, natural son of the conqueror, and celebrated in Sir Walter Scott's novel of "Peveril of the Peak." The

inhabitants of the village are mostly employed in mining. Some, however, derive a subsistence from the manufacture of ornamental articles from spar, and from acting as guides to the strangers visiting the many natural curiosities of the neighborhood. Among the most remarkable is the Peak cavern, or Devil's cave, consisting of a series of subterranean chambers, which can only be explored by torchlight. The whole depth of the excavation inward from the opening is 2,800 feet.

CASTLETOWN, the capital of the Isle of Man, England, on a bay of the same name, near the S. extremity of the island; pop. in 1851, 2,479. It contains King William's college, founded in 1880, and Castle Rushen, said to have been built by a Danish prince in 960. It is the seat of the governor and of the Manx courts of law.

CASTOR, a substance somewhat resembling musk, secreted by the beaver. It is of the consistency of honey, has a strong, penetrating, fetid, and volatile odor, which is lost when the substance is dried and hardened. It is used to some extent in medicine as an antispasmodic and stimulant, and is thought to act especially upon the nervous system. It was known and recommended by Pliny and Dioscorides, but it has not a high reputation among modern practitioners; and as it is often largely adulterated, there will be little cause for regret should its use be discontinued. The article considered the best is obtained from Russia. The American beaver produces an inferior quality. Benzoic acid is recognized among the numerous organic compounds of which this substance consists.

CASTOR OIL, a mild purgative obtained from the nuts of the castor oil plant, the *Ricinus communis*, or *palm Christi*. *Ricinus* is an apetalous genus of plants belonging to the natural order *euphorbiaceae*. It was originally a native of Asia, and was used by the nations of antiquity, but is now naturalized in Africa, America, and the south of Europe. The characters of this genus are: Leaves alternate, stipulate, palmate, glands at apex of petiole. Flowers in terminal panicles; monœcious, no petals; calyx 8-5 parted, valvate; filaments numerous, polyadelphous; style short, stigmas 3, bipartite, feathery; ovary globose, 8 celled, with an ovule in each cell; fruit capsular, trilocular. The tribe is formed of trees, shrubs, or herbs becoming arborescent. The *R. communis* or *palm Christi* has peltate palmate leaves, with lanceolated serrated lobes; an herbaceous glaucous stem, of a purplish red color upward, and flowers in long green and glaucous spikes, springing from the divisions of the branches, the males from the lower part of the spike, the females from the upper. The capsules are prickly. It varies in size in different countries. In some parts of Europe it is not more than 3 or 4 feet high, but in India it is a tree, and in Spain it attains fair dimensions. The native country of *R. communis* is unknown; it is conjectured to be Barbary. The castor oil plant was known in

very ancient times, both to the Egyptians and the Greeks. The latter called it croton, a name bestowed by modern botanists on another genus of euphorbiaceous plants, one species of which yields the strongly purgative oil called *oleum tiglii* or croton oil. Numerous varieties of *R. communis* exist in various localities, differing not only in color and the peculiar condition of the stem, but in stature and duration. In warm countries it is ligneous and perennial; in cold regions, annual and herbaceous. The entire plant possesses active properties, but the oil extracted from the seeds is alone employed in Europe. The ancients administered the seeds entire, but their variable action, producing sometimes even fatal effects, led to their disuse. The oil is of comparatively recent introduction. The seeds were formerly known in the shops as *semina ricini* or *catapultia majoria*. They are about the size of a small bean, obtuse at both ends, the surface being smooth, shining, and beautifully marbled. The skin consists of 8 tunics; the nucleus or kernel consists of an oily albumen and an embryo, the cotyledons of which are membranous or foliaceous. The outer shell is devoid of taste. According to Dr. Dierbach, the active principle resides in the inner coat; others assert that the purgative principle resides in the embryo. Méral and De Lens have shown, in the *Dictionnaire des sciences médicales*, t. xlix., that the active principle is diffused through the entire substance of the kernel, though possibly with more intensity in the embryo.—The quality of castor oil depends on the greater or less maturity of the seeds; the peculiar variety of the plant from which they have been obtained; and the accidental or intentional admixture of other seeds, before the process of extraction. Both in India and America much heat was formerly employed in the process, and this was injurious to the quality of the oil. During the application of heat a volatile principle escaped which was so irritating that the workmen had to protect their faces by masks. The French method is the best. The fresh seeds are bruised, and then put into a cold press. The oil is expressed and allowed to stand some time, to permit the albumen, mucilage, and other matters to subside; or it is filtered, to separate them more rapidly. The produce is equal to about  $\frac{1}{3}$  of the seeds employed, and the oil possesses all its natural qualities. Both the French and Italian oils are much milder than oil procured from tropical countries. Oil of good quality is a thickish fluid of a very pale yellow color, the best being almost limpid, with a slightly nauseous odor and an oily taste, mild at first, but causing a feeling at the back of the throat, more or less intense, according to the freshness of the specimen. Bad oil is rancid and disagreeable.—When pure, it is a mild aperient or laxative, operating without griping or other inconvenience, and commonly very soon after it is taken. It is deemed the most proper laxative in many inflammatory states of the abdomen, the kidneys, or the bladder. It is also deemed

a most eligible medicine in piles and other affections of the rectum. Alone or with turpentine, it is very efficacious in expelling worms. The chief objection to its use is the repulsive taste. From 15 to 20 drops of pure liquor potassæ will usually saponify half an ounce of castor oil, to which 1 ounce of distilled water and a drachm of spirit of pimento or of nutmeg may be added, to make an emulsion, which is equally effective and not unpleasant to the taste. Castor oil is much used in the East, France, Italy, and other countries, for burning, as well as for medicinal purposes.—The manufacture of castor oil is actively carried on in the U. S., especially at St. Louis, the beans being produced in southern Illinois. The ground is prepared as for other crops, and the seeds are planted much in the manner of those of Indian corn, with the exception that there is but one seed put into each hill, and that at every 4th row a space is left to admit of the passage of a team for the purpose of gathering the crop. The ripening commences in August, about 20 bushels from an acre of ground is considered a fair yield. The ordinary hydraulic press was first applied to the manufacture by Mr. Henry T. Blow, about 1847. Mr. Blow's manufactory was the most extensive in the U. S., but was destroyed by fire in the early part of 1856. A new press introduced by Mr. Latourette and patented Oct. 28, 1851, has increased the product of oil from the bean  $87\frac{1}{2}$  per cent. over the ordinary hydraulic press, and brought the manufacture in many other respects to a higher degree of perfection. On an average one of these presses is estimated to work 150,000 bushels of beans per annum, producing 400,000 gallons of oil. The produce in 4 years, 1850 to 1853, averaged an annual yield of about 286,000 gallons, most of which was taken for home consumption.—The following table presents the movement of the American trade with foreign countries in castor oil during the year ending June 30, 1857.

Imports.		
	Gallons.	Value.
From England.....	26,614	\$15,018
" British East Indies.....	189,452	56,982
" France on the Atlantic.....	197	119
" Porto Rico.....	641	818
" China.....	860	170
Total.....	167,964	\$102,509
Places into which imported.		
Boston and Charlestown.....	127,926	\$79,894
New York.....	89,211	22,957
Philadelphia.....	83	101
San Francisco.....	45	50
Total.....	167,964	\$102,509
Exports.		
	Gallons.	Value.
Canada.....	2,041	\$2,549
Other British N. Am. possessions.....	400	825
British West Indies.....	40	48
Total.....	2,481	\$2,922
Places whence exported.		
Vermont.....	450	\$908
Boston.....	1,991	1,971
Baltimore.....	40	48
Total.....	2,481	\$2,922

CASTOR AND POLLUX, called also the Dioscuri, or sons of Jupiter, famous heroes in



Greek mythology. According to Homer, they were sons of Tyndareus and Leda, and brothers of Helen and Clytemnestra, and hence are often called the Tyndarides. Castor excelled in taming horses, and Pollux in the game of boxing. Though buried, they were taken from the earth before the siege of Troy, became immortal and honored as gods, and sometimes appeared among men. The legend was complicated by subsequent poets. According to some, the Dioscuri were sons of Leda and of Jupiter disguised as a swan or a star; according to others, Pollux only had this divine origin and the privilege of immortality. The place of their birth was variously said to be Amyclæ, Mount Taygetus, and the island of Paphnos. They are fabled to have attacked and ravaged Attica, and to have brought back their sister Helen who had been stolen away by Theseus. They took part in the Calydonian boar hunt, and accompanied the expedition of the Argonauts, during which Pollux vanquished with the *caestus* the giant Amycus, king of the Bebryces, and founded the city of Dioscurias in Colchis. Associated with Idas and Lynceus, sons of Aphareus, they plundered Arcadia, but in a quarrel which arose concerning the division of the spoil, Castor, the mortal, perished by the hands of Lynceus, who in his turn fell under the blows of Pollux, while Idas was struck with a thunderbolt by Jupiter. According to another tradition Castor was slain in a war between Athens and Lacedæmon. Jupiter permitted Pollux to pass alternately one day with his brother on Olympus and another on the earth. The worship of these heroic brothers was established by the Achæans, adopted by the Dorians, and spread throughout Greece, Italy, and Sicily. They were the tutelary gods of hospitality, presided over gymnastic exercises, and were eminently the mighty helpers of man. They calmed tempests, appearing as light flames on the tips of the masts. They sometimes appeared in battle, riding on magnificent white steeds at the head of the army. By their assistance the Romans believed themselves to have gained the battle of Lake Regillus. Placed among the stars they became the constellation Gemini. In works of art, they are usually represented as young horsemen in white attire, with a purple robe, armed with the lance, and wearing a helmet crowned with stars. At Rome the men swore by the temple of Pollux, *Ædopol*, and the women by that of Castor, *Æcastor*. There was an ancient temple consecrated to them in the Forum, around which the *Equites* marched in magnificent procession every year on July 15.

CASTOR RIVER rises in St. Francis co., Mo., flows S., communicates by several arms with a group of small lakes in Stoddard co., and afterward unites with the Whitewater river. The stream thus formed, which is sometimes called the Castor, but more frequently the Whitewater, flows through a low swampy region, in which most of the streams spread themselves over a large surface and form extensive marshes or

lakes. It receives the outlet of Lake Pemisco, and finally discharges itself into Big lake.

CASTREN, MATTHEW ALEXANDER, a Finnish philologist, born Dec. 2, 1818, at Tervola, Finland, died May 7, 1852, in Helsingfors. He devoted himself to collecting the monuments of the genius of Finland, scattered through the various tribes, and as a preparation he undertook to travel on foot in 1838 through Finnish Lapland. Aided by government, he pursued his investigations through Norwegian and Russian Finland, and even as far as the Samoiedo of Europe and Siberia. He also visited Karelia, to make himself more familiar with the language, with a view to the translation into Swedish of the celebrated popular poem, the "Kalevala." He was appointed linguist and ethnographer to the academy of St. Petersburg, and with the aid of the university of Helsingfors, he extended his researches throughout Siberia, from the frontiers of China to the shores of the Arctic ocean. With feeble constitution and delicate health, he accomplished extraordinary labors, and sent home, in addition to the documents connected with his own studies, reports and letters of great value. Many of these were published in the Russian and Swedish periodicals of the day. Castren was honored on his return to his country, in 1851, a year before his death, with the office of first professor of the Finnish language and literature at the university of Helsingfors. The literary society of Finland and the academy of St. Petersburg caused his writings to be published after his death, the latter body appointing Mr. Schiefner as editor of the works published in St. Petersburg in German in 1853 and 1856, while Finnish editions were brought out at Helsingfors in 1852, 1853, and 1855, and a German edition of part of them appeared also in Leipsic. His Samoiedo grammar and dictionary were published in St. Petersburg by Mr. Schiefner in 1854 and 1855, and his Tungusian dictionary in 1857. A biographical sketch of Castren, by Mr. Borg, appeared at Helsingfors in 1853, and in the same city a monument has been dedicated to his memory.

CASTRES, a flourishing town of France, pop. 14,144, in the department of Tarn, 26 m. S. E. of Albi, lying in a fertile valley on both sides of the river Agout, which is here crossed by 2 stone bridges. It is the seat of a Protestant consistory, having been one of the first towns to embrace the doctrines of Calvin. It has manufactures of silk, woollen, and cotton goods. Castres was founded by the Franks, A. D. 647; suffered much in the religious wars of the 16th century; its fortifications were destroyed by Louis XIII. in 1619. It was long the residence of Henry IV. during his religious wars.

CASTRO, INES DE, wife of Pedro of Portugal, born in the first part of the 14th century, assassinated in 1355. She was a daughter of Don Pedro Fernandez de Castro, a descendant from the royal house of Castile, and a maid of honor to Constantia, 1st wife of Pedro. After

Constantia's death in 1844, Pedro, fascinated by the extraordinary beauty of Ines, contracted a secret marriage with her, which, when a few years afterward it was disclosed to his father Alfonso IV., met a violent opposition on the part of this king, who feared the influence exercised by one of the brothers of Ines. The apprehension that the children of Ines might interfere with the claims to the throne of Pedro's children by his first wife, also preyed upon the mind of Alfonso. Her death was resolved upon, and while Pedro was away from home on a hunting excursion, the king proceeded to Coimbra with the intention of murdering Ines; but when he arrived there and beheld the beautiful woman, surrounded with her children, and imploring his mercy, he was overcome with pity. Eventually, however, he yielded to the evil suggestions of his advisers, and Ines was assassinated. When Pedro came home and found, instead of the lovely presence, the bleeding corpse of his wife, his grief and wrath knew no bounds, and his mother and the archbishop of Braga succeeded with the greatest difficulty in reconciling him with the king, and in appeasing for a time his thirst for vengeance. After the king's death in 1857, this thirst, however, broke out with increased fury. Only one of the assassins of Ines, Diego Lopez Pacheco, succeeded in escaping to Aragon. The other 2, Pedro Coelho and Alvaro Gonsalvez, who had sought protection at the court of Pedro the Cruel in Castile, were surrendered in exchange for some Castilian prisoners to Pedro of Portugal, who, after subjecting them to the most cruel tortures, had their hearts torn out of their bodies, their bodies burnt, and the ashes scattered to the winds. His regard for the memory of his wife did not rest here. He convened a solemn council at Castanheda, when, in the presence of the nobility and the court of Portugal, he produced the papal documents and the evidence of the archbishop of Guarda, the attending priest, in order to establish an irrefragable proof of the legitimacy of his marriage with Ines. The proceedings of this council were published all over the kingdom, and the next step of Pedro was to have the remains of Ines exhumed. Her corpse was put upon the throne, clothed with the insignia of royalty, and, one after another, the dignitaries of the kingdom approached to kiss the hem of the royal garment. Ines was afterward buried with great pomp at Alcobaca, the king, the bishops, the lords and officers of Portugal following the funeral procession on foot. The road from Coimbra to Alcobaca over which it passed, extending over 60 miles, was literally covered with the population, who stood on both sides with torches in their hands. A superb monument was dedicated to her at Alcobaca. Gomes in Portugal, the count of Soden in Germany, Feith in Holland, have founded tragedies upon the incidents of Ines de Castro's life. But the most remarkable tribute paid to her memory is

that of the great Portuguese poet Camoens, in the "Lusiad."

**CASTRO DEL RIO**, a Spanish town on the Guadajoz, province of Cordova; pop. in 1852, 8,851. The ancient part of the town is surrounded by a dilapidated wall with towers. The entrance is by a single gate, once defended by an Arab castle, now in ruins. The modern portion is outside the walls, and is well and handsomely built. There are 2 colleges and several schools, convents, chapels, hospitals, and factories of various kinds. The town has a trade in wheat, cattle, oil, honey, &c.

**CASTRO URDIALES**, or **CASTROURDIALES**, a seaport town of Spain, on the bay of Biscay, in the province of Santander; pop. in 1852, 3,810. It was sacked by the French in 1811, but has since been neatly rebuilt. A ruined convent of the templars is in the vicinity. It has a safe harbor, and extensive fisheries.

**CASTRO VIREYNA**, a Peruvian province, in the department of Ayacucho; pop. about 15,000. The capital, bearing the same name with the province, is situated on the W. slope of the Andes, at the head of a small stream falling into the Pacific. The climate is healthy, though cold; the pasturage good; fine sheep are reared, and a beautiful quality of wool, from the vicuña, is produced here.

**CASTROGIOVANNI**, or **CASTRO GIOVANNI**, (anc. *Enna*), a city of Sicily, in the district of Caltanissetta, pop. about 12,000, on a plateau in the centre of the island, 4,000 feet above the sea. The climate is healthy, the soil fertile, and water abundant. The old feudal fortress of Enna is the chief edifice. It was the fabled birth-place of Ceres, and the site of her most famous temple. About 5 m. distant is the lake of Pergusa, where Proserpine, according to the poets, was carried off by Pluto. During the first servile war the insurgent slaves made Enna their head-quarters.

**CASTRUM DOLORIS**, or castle of mourning, called in French *chapelle ardente*, is the room, whether it be a chamber, chapel, or church, in which a catafalco is erected at the burial of a prince or other distinguished personage. This room is hung with black, adorned with the arms and the likeness of the deceased, and lighted with numerous wax tapers. In the middle is the catafalco, or lofty tomb of state, upon which the coffin, usually empty, is placed. This is covered with memorials of the rank and dignity of the departed, with his insignia of office and orders, and with his sword and epaulets. Above this hangs a canopy, and high chandeliers stand about it.

**CASVEEN**, **CASBIN**, **KASBIN**, **KAZBIN**, or **CASBEEN**, a fortified city of Persia, in the province of Irak-Ajemea, 90 m. N. W. of Teheran, lat. 36° 12' N., long. 49° 58' E.; pop. estimated at 60,000. It is surrounded by brick walls, with towers, and is said to exceed Teheran in extent; but whatever grandeur it may have once possessed has been destroyed by repeated earthquakes. Whole streets lie in

ruins, and most of the ancient buildings have been overthrown. The palace, though much dilapidated, is still occupied by the governor. A mosque with a large dome, bazaars, schools, and baths are the other principal buildings. The chief manufactures are velvets, brocades, a coarse cotton cloth called kerbas, carpets, sword-blades, and wine. Grapes and nuts are produced abundantly, and of good quality. Casveen is also an entrepot for the silks of Ghilan and Shirvan destined for Bagdad and India, and for rice from the Caspian provinces. The surrounding plain was formerly one of the most productive districts of Persia, its natural fertility being greatly enhanced by a vast system of irrigating canals, most of which are now choked up, except in the immediate vicinity of the city. Casveen was founded about the middle of the 4th century, and under the Suffide dynasty became the capital of the kingdom. The removal of the seat of government to Ispahan checked its prosperity, though it still has much commercial importance.

CASWELL, a co. in the N. part of N. C., bordering on Va.; area 400 sq. m.; pop. 15,269, of whom 7,770 are slaves. It is intersected by Hycotee river and County Line creek, affluents of Dan river. The surface is undulating, and the soil fertile. The productions in 1850 were 75,248 bushels of wheat, 111,891 of rye and oats, 417,509 of Indian corn, 2,282,939 lbs. of tobacco. There were 24 corn and flour mills, 4 saw mills, 1 iron foundry, 1 cotton factory, 9 tobacco manufactories, 26 churches, and 1 newspaper. It was organized in 1777, and named in honor of Richard Caswell, the first governor of the state under the constitution. Capital, Yancey.

CASWELL, RICHARD, first governor of North Carolina, and brigadier-general in the army of the American revolution, born in Md., Aug. 8, 1729, died Nov. 10, 1789. In 1746 he removed to N. C., where, in 1754, he became a member of the colonial assembly, in which he continued to hold a seat till 1771. He was then chosen speaker of the house of commons, and colonel of the county militia, and at the outbreak of the revolution identified himself with the patriots. He soon after became treasurer of the state. In 1776, in command of a regiment of minute men, he defeated the loyalists at Moore's creek, and for this service was appointed brigadier-general. For 8 years he was president of the provincial congress which framed the state constitution, under which he was elected the first governor. He was engaged in the disastrous battle of Camden in 1780, became comptroller-general of the state in 1782, and was again elected governor in 1784, to which office he was twice reelected. In 1787 he was a delegate to the convention assembled at Philadelphia for the formation of a federal constitution; in 1789 he was speaker of the state senate, and he was subsequently one of the convention by which the federal constitution was ratified in N. C. He

was presiding in the senate when he was struck with paralysis, which proved fatal.

CAT (*felis*, Linn.). The Linnæan genus *felis* comprises about 50 species of carnivorous mammalia, the characters of which are closely assimilated, and at the same time widely different from other genera. It is characterized by 6 incisor teeth above and below; 2 canine teeth in each jaw, powerful and formed for tearing; molar or cheek teeth, 4 in the upper jaw and 8 in the lower, thin, pointed, and wedge-shaped, formed for cutting. The head is large, round, and wide; the eyes have the pupil often oblong; the tongue has strong horny papillæ, directed backward. The feet are formed for walking; the toes are 5 in number on the fore feet, and 4 on the hind feet, armed with strong, sharp, and hooked claws, retracted when the animal walks. The intestines are very short, as in all animals living almost exclusively on animal food. The animals composing this genus (which includes the lion, tiger, panther, &c.) are the most powerful and ferocious of all predatory quadrupeds, as the eagles and birds of prey are among the feathered tribes. The different species are distributed over every portion of the globe, with the exception of Australia and the South Pacific islands; but the most formidable are found in the warmest climates; no species has been discovered common to the old and the new world. The favorite resorts of these animals are the thick forests of the tropics, where they lie concealed during the day, and prowl at night in search of prey; the more northern and smaller species prefer rocky and well-wooded situations. The cats hunt a living prey, which they secure by cunning and watchfulness, springing upon their unsuspecting victims from an ambush, or stealthily crawling up to them. Some species, as the leopard and jaguar, pursue their prey into trees; the cougar lies in wait on a branch or overhanging rock, and falls upon animals passing beneath. Their aspect is ferocious, their instincts bloody, and their strength great; even their voice has something in it harsh and terrible. The anatomical structure of the cats is indicative of great strength and activity; the jaws are very powerful, bearing teeth shaped like wedges, thin and sharp, requiring but little force to cut through the flesh on which they feed; the structure of the joint admits of no lateral motion, and the whole force of the immense temporal and masseter muscles is exerted in a perpendicular or cutting direction. To assist in tearing their food, the surface of the tongue is covered with numerous horny papillæ; these may be felt, on a small scale, on the tongue of the domestic cat; the tongue is rather an organ for removing muscular fibres from bones, and for retaining flesh in the mouth, than an organ of taste. The neck, shoulders, and fore limbs display a remarkable muscular development; the lion can drag away with ease cattle and horses which it has killed; a single blow of the fore limb of a

Bengal tiger has been known to fracture a man's skull. The mechanism by which their claws are retracted and prevented from being blunted during walking, is as follows: the claw itself is supported on the last bone, which consists of 2 portions united to each other at nearly a right angle; the articulation is at the upper end of the vertical portion, while the flexor tendons are attached to the other portion; the action of these muscles causes the whole bone to move through an arc of 90° round the end of the second bone. In the state of rest the claw is kept retracted by a slip of the extensor muscle, and by elastic ligaments; in the state of action, the strong tendon of the flexor, with its circular sweep, protrudes the claw with prodigious power.—With their fierce instincts and admirable destructive weapons, the carnivora play an important part in the great plan of nature; without their agency the herbivorous animals on which they prey would become too numerous for the food provided for their nourishment, and would thus be the cause of their own extinction. Man also reaps a direct benefit from the trade in their skins, of which immense numbers are used in China as emblems of rank, in Russia as real necessities in the winter season, and in Europe as ornamental dresses.—The domestic cat is generally believed to have sprung from the *felis maniculata* (Ruppel), a native of the north of Africa. This species is 2 feet 5 inches long, of which the tail measures 9 inches; the height at the shoulder is 9½ inches; in size it does not differ from the domestic cat. The color above is an ochry gray, with a darker line along the back; beneath, grayish white; on the forehead are 8 slender black lines, running backward to the upper part of the neck; the cheeks, throat, and front of the neck are pure white; 2 lines of an ochre-yellow color, one from the outer corner of the eye, and the other from the middle of the cheek, meet under the ear, and 2 rings of the same color encircle the white of the neck; the limbs have 5 or 6 blackish semicircular bands; the heels and wrists are black; the tail is slender, and has 2 dark rings at the tip. There is no doubt that this species is the original of the domestic cat of the ancient Egyptians, as is shown by the representations of cats on their monuments, by mummies, and by the skeletons found in their tombs. It may be a question whether this domesticated species was transferred by them to the antique nations of Europe. There certainly is often met with, in modern times, a grayish white cat, possessing the most striking resemblance to the Egyptian species; others of our domestic cats resemble the wild species of Europe. It is probable, therefore, that, as with all our domestic animals, different nations have domesticated different small kinds of native cats, which have produced, by the intermixture of their closely allied species, the numerous varieties now observed. At the same time, it should be remembered that the whole

genus *felis* is susceptible of considerable variation; slight variety of color, therefore, does not necessarily imply diversity of origin. Temminck and Ruppel are of the opinion that the *felis maniculata* is the species from which our domestic cat has sprung; before them most naturalists believed that the wild cat of Europe was the original stock; it is altogether probable that the domesticated species has been crossed in many instances by the wild cat, as shown by the short legs and thick short tails of some varieties. All the small species of cats might be easily domesticated, though the common Egyptian species seems to be the only one generally employed in household economy. The domestic cat readily returns to a wild state; neglect, insecurity of their young, or favoring circumstances, drive or tempt them to the woods, where they prowl and hunt, and breed, in the manner characteristic of the genus. Cats, though they prefer flesh, will eat bread, fish, insects, and almost any thing that is eaten by man. As a general thing, they have a great dislike to water, and will rarely enter it for the purpose of catching fish, of which they are extremely fond. They are capable of very strong attachment to man, and to animals reared with them. Among the most remarkable varieties of the domestic cat, are the Maltese or Chartreuse cat, of a bluish gray color; the Persian cat, with long white or gray hair; the Angora cat, with very long and silky hair, generally of a brownish white color; and the Spanish or tortoise-shell cat, the most beautiful of all. In Cornwall and the Isle of Man, a breed of cats without a tail is quite common, analogous to a similar and more common breed of dogs.—The common wild cat (*felis catus*, Linn.) is the only animal of the genus that inhabits the British islands, where it is still not uncommon in the wild districts of Scotland and Ireland; it is found in the wooded tracts of the European continent. The length of the wild cat is 33 inches, the tail being 11 inches. The fur is long and thick, but not shaggy; the color varies from a yellowish to a blackish gray, darkest on the back, where it forms a line, diverging into 4 on the neck and head; the sides are brindled with broad, dark, but indistinct bands; the legs have 2 or 3 black bars, running transversely upward; the tail is thick, with black rings indistinct toward the base, and a black tip. The wild cat is an active climber; its food consists of small animals and birds; its depredations among game are frequently very great. There are no long-tailed wild cats in North America; the animal called wild cat here is a species of lynx. (See BAY LYNX.) The catamount is the cougar of authors. (See COUGAR.) There are several small species of cats in the East Indies: the Sumatran cat, *felis minuta* (Temminck), and *F. Javanensis* (Horsfield); the Bengal cat, *F. Bengalensis* (Desm.); Diard's cat, *F. Diardii* (Desm.), and Nepal cat, *F. Nepalensis* (Horsfield).

CATACAUSTIC. See CAUSTIC.

CATACHRESIS (Gr. *kata*, against, and *χρησις*,

use), a rhetorical figure by which a word is put to a different usage from that which it had originally, being borrowed from one idea to express another. Thus Milton, describing Raphael's descent from heaven, says, "He *sails* between worlds and worlds." This figure is common in the speech of daily life, as in the example, "Tears *speak* louder than words." The term catachresis is sometimes limited to the abuse of a trope, when a word is wrested too far from its true signification.

CATACOMBS (*kata*, downwards, and *κρυβος*, a hollow place), subterraneous places for burying the dead. The catacombs of Egypt, from their vast size, extent, and elaborate pains spent upon them in decorations, both of architecture and painting, are perhaps more remarkable than any others. The most ancient are those of the Theban kings, which can be traced for a period of 8,000 to 4,000 years. It is supposed that the ancient Egyptians spent such enormous sums on their tombs and processes of embalming, from their belief that the soul would revisit the body if this were preserved from decay; and hence resulted their stupendous catacombs, which to this day interest and astonish the traveller. The entire chain of mountains in the neighborhood of Thebes is mined by an immense number of catacombs. Those of the kings, originally 47 in number, have been mostly defaced, but a few still exist to bear witness to the pristine magnificence of these sepulchres. They occupy a deep ravine, flanked by the bed of a torrent in the centre of the mountain Libycus, and, lying some 6,000 to 7,000 paces from the banks of the Nile, were reached by an artificial passage. Proceeding along the valley, the wanderer discovers openings in the ground, with a gateway in a simple square frame, each gateway being the mouth of a gallery leading to the royal sepulchre. Forty paces within is another gateway opening to a 2d gallery 24 feet in length, and on each side of this are small chambers. A 8d gallery succeeds, communicating with a chamber 18 feet square, and from this is an entrance to another gallery 64 paces in length. This in its turn connects with several small apartments, beyond which lies a saloon 20 feet square, containing the royal sarcophagus. The whole extent of excavation in this single tomb is upward of 225 paces. All the sarcophagi of the kings have long since been violated, and the bodies destroyed, doubtless for the sake of plunder. M. Denon, the French traveller, found, however, in one of the royal tombs, the fragments of a mummy. Robbed as they have been of their royal clay, these tombs still preserve their wonderful paintings, after in some cases a lapse of 4,000 years; the more costly of the catacombs are covered in the whole extent of their interior by hieroglyphics and pictures, generally in fresco, and in all, unless wantonly injured by the Arabs, the colors are as fresh as if laid on but yesterday. The catacombs of the opulent of the ancient Thebans were lower on the mountain than the

royal sepulchres, and in proportion to the extent of their excavations, they are more or less richly decorated; the hues of the paintings are brilliant, and the sculptures elegantly defined. Innumerable subjects are displayed in these tombs, one chamber being devoted to warlike representations, and another to husbandry or agriculture. Every ordinary occupation or amusement is exhibited, hunting, fishing, feasting, &c. Many of the figures are colored yellow on a blue ground, exhibiting homage paid to monarchs, executions, religious or funeral processions, and, in short, every phase of human life. In some of the scenes gangs of African negro slaves, colored black, and accurately drawn in all leading characteristics, such as thick lips and woolly hair, are represented, and are adduced by those who disbelieve the theory of the unity of the human race, as one of the strongest proofs against it; showing at least that, so far from the distinctions of the negro being created by the influence of climate through successive generations, his type was precisely the same 1,500 years B. C. In a group of a double file of negroes and Nubians, bound, and driven before the chariot of Ramses II., at Abou Sambool, are delineated with perfect accuracy all the characteristics of the modern Ethiop. The paintings in the Egyptian catacombs also exhibit figures of colossal or pigmy size, as well as hawk-headed and fox-headed deities. The complete history of the ancient Egyptians may be read in these paintings, as every action of their lives is represented with accompanying furniture, even down to the playthings of infant children. "The Manners and Customs of the Ancient Egyptians," by Sir Gardner Wilkinson, contains many hundreds of drawings and colored plates directly copied from these extraordinary frescoes, and make the reader so intimately acquainted with the daily life of an extinct people, that he seems to walk hand in hand with the former dwellers by the banks of the Nile. The catacombs for the poor were limited in space, rude in construction, and unadorned. In consequence, the mummies were packed together as closely as they could be laid, tier on tier, leaving a narrow passage between the walls of bodies. It is calculated that, during the ages when the art of mummification was known and practised, not less than 400,000,000 of mummies were entombed in the Egyptian catacombs.—For nearly the whole period of the Christian era have the Roman catacombs attracted the interest of Christians, more especially during the last few centuries. Connected as they were with the trials of the early martyrs of the church, their exploration and history has ever proved one of the favorite branches of research. Many of them are of great antiquity, having been originally quarries hewn long before the Rome of Romulus and Remus was founded, and so extended in the course of time, that every one of the 7 hills on which the city stood was perfo-

rated and honey-combed by passages, dark galleries, low corridors, and vaulted halls, where sunshine never enters. The light and soft nature of the material to be quarried greatly facilitated the work, and allowed the workmen to shape their shafts and galleries as they pleased; the excavations being made in the soft volcanic *tufa*, and *pozzolano*, another volcanic substance even softer. As the extent and wealth of the city increased, new quarries were continually opened, even miles from the banks of the Tiber, and continued to be sought through the reigns of the Cæsars, until the empire began to decline, and old edifices were resorted to as materials for new ones. None of the ancient writers have left any account of the uses of these recesses when they were no longer quarried, but Horace, speaking of the caverns under the Esquiline hill, says: "This was the common sepulchre of the miserable plebeiana." During the time of the persecutions of the Christians, commencing with that under Nero, and followed by those of Domitian, Trajan, Hadrian, Severus, Maximinus, to what is called the 10th and last persecution, which began in A.D. 303, under Diocletian, the catacombs were crowded with those for whom there was no safety in the face of day. It is conjectured that many of these sufferers were aided in obtaining secure hiding-places by the fossors or workmen in these caverns, who were well acquainted with their intricacies, and who became themselves early converts to the new faith. It was not until the year 1377, when the papal seat, which for nearly 70 years had been at Avignon, was restored to Rome, that the catacombs appear to have attracted any serious attention from the government or the clergy. This was doubtless owing to the frightful state of society, which, for some centuries after the extinction of the western empire, rendered Rome little better than a robbers' stronghold, and finally forced the pontiff to flee from the Tiber and seek an asylum on the banks of the Rhone. At this period the catacombs, from having been the habitations of persecuted Christians, were thronged with outlaws and assassins; but as the papal authorities acquired strength, many of them were driven from their lurking places, and the entrances to many closed. About 1535, under Pope Paul III., some few of the most remarkable of the crypts were explored, cleared, and lighted by lamps. A deep interest in subterranean Rome having thus been awakened, Father Bosio, a humble priest, but an enthusiastic antiquary, spent more than 80 years of his life, from 1567 to 1600, in digging and groping in the catacombs; he cleared the way into some of the innermost recesses which had been blocked up for centuries, and made drawings of the ancient monuments, inscriptions, paintings, sculptures, lamps, vases, &c., found underground. He did not live to see his work published, as he died while writing the last chapter, but it appeared in 1682, edited by Father Severani, and under the

title of *Roma Sotterranea*. It was translated into Latin by Father Aringhi, and still forms the most important work on the Roman catacombs. He was followed by Father Boldetti, who also spent more than 80 years in his subterranean research, and published in 1720 a folio volume, entitled "Observations on the Cemeteries of the Holy Martyrs and Ancient Christians of Rome." This work is exceedingly valuable. These two enthusiastic and meritorious priests have been succeeded by such investigators as Bottari, Marangoni, Lupi, Fabretti, Filippo Buonarroti, Allegranza, &c. Seroux d'Agincourt is one of the most distinguished authorities of modern times; he went to Rome in the latter part of the last century to study Christian archæology and remain there for 6 months, but he became so interested in his inquiries that he stayed nearly 50 years. His great work, *Histoire de l'art par les monumens, depuis sa decadence au 4<sup>e</sup> siècle jusqu'à son renouvellement au 16<sup>e</sup>*, treats of the catacombs with profound learning and discrimination. M. Perret, a French architect, who accompanied the army sent by Louis Napoleon to the aid of Pius IX., has been for some years engaged in a work upon the catacombs. It is not finished, but promises to be far superior to any on the subject which have yet appeared. When Bosio's discoveries were made known, Pope Clement VIII. took the catacombs under his special protection, and decreed excommunication and severe corporal punishment against any one who should enter them without leave, or remove from them the least object whatsoever. They have from that time been regarded with peculiar veneration, from their history as hiding-places for the early Christians. Although neglected by the government for many ages, they had attracted the notice of the pious since the beginning of the 4th century. So highly were the virtues of the Christian martyrs esteemed, that personages of the highest distinction were buried in the catacombs, and were happy if they thought that after their death such honor should be paid to their remains. Among illustrious men thus entombed were the popes Leo I., Gregory the Great, Gregory II. and III., and Leo IX.; and the emperors Honorius, Valentinian, and Otho II.—The catacombs of Naples are of greater extent than those of Rome; they are not subterranean, but excavated in the volcanic tufa in the face of the hill of Capodimonte, forming a long series of corridors and chambers, arranged in 3 stories communicating with each other by steps. The only entrance now open is that of the church of San Gennaro. Their construction has given rise to many speculations among the antiquaries of Naples, but is now generally ascribed to the colonists from Greece. Subsequently they were used by the early Christians for purposes of sepulture as well as of worship. St. Januarius and other martyrs were interred here. In the middle of the 17th century they were made the burial place of the victims of the plague, and at the beginning of this century,

several bodies were found by Abbé Romanelli.—The catacombs of Syracuse are larger and better preserved than any other catacombs, and not of so gloomy an appearance as those of Rome and Naples. They form an immense subterranean town, with innumerable tombs cut out of the solid rock, containing the dead of all ages, nationalities, and creeds. They were converted by the early Christians into places of refuge from persecution. The entrance to them is under the church of San Giovanni.—The catacombs of Malta are of small extent, but in good preservation. They are subterranean, and seem to have been used for a place of worship as well as of sepulture.—The so-called catacombs of Paris were never catacombs in the ancient sense of the word, and not devoted to sepulchral purposes until the year 1784, when the council of state issued a decree for clearing the cemetery of the Innocents, and for removing its contents, as well as those of other graveyards, into the quarries which had existed from a remote period beneath the southern part of Paris, and by which the Observatory, the Luxembourg, the Odéon, the Val de Grâce, the Panthéon, the streets La Harpe, St. Jacques, Tournon, Vaugirard, and many others were completely undermined. Some excavations having taken place, a special commission was appointed to direct such works as might be required. Engineers and workmen were immediately employed to examine the whole of the quarries, and prop the streets, roads, churches, palaces, and buildings of all kinds which were in danger of being engulfed. The plan of converting the quarries into catacombs originated with M. Lenoir, lieutenant-general of the police, and every preparation was made by sinking a shaft, propping up the cavities, and walling off various portions for receiving their future contents. The ceremony of consecrating the catacombs was performed with great solemnity on April 7, 1786, and on the same day the removal from the cemeteries began. This work was always performed at night; the bones were brought in funeral cars, covered with a pall, and followed by priests chanting the service of the dead, and when they reached the catacombs, the bones were shot down the shaft. Such tombstones, monuments, &c., as were not claimed by the families of the deceased, were arranged in a field near the entrance of the shaft, and among these relics was the leaden coffin of Madame de Pompadour. As other cemeteries were suppressed, the bones from them were removed to this general deposit by order of the government. The catacombs served also as convenient receptacles for those who perished in popular commotions or massacres. At first the bones were heaped up without any kind of order, except that those from each cemetery were kept separate; but in 1810 a regular system of arranging them was commenced, and the skulls and bones were built up along the wall. The principal entrance to the catacombs is near the *Barrière d'Enfer*,

but for some years past admission into them has been strictly interdicted, on account of the dangerous state of the roofs of the quarries. From the entrance a flight of 90 steps descends to the catacombs; a series of galleries are then seen branching in various directions, and several hundred yards from the steps is the vestibule, of octagonal form, and over the door is the following inscription: *Hæc ultra metas requiescunt beatam spem spectantes*. The vestibule opens into a long gallery lined with bones from the floor to the roof; the arm, leg, and thigh bones are in front, closely and regularly piled together, and their uniformity is relieved by three rows of skulls at equal distances. Behind these are thrown the smaller bones. This gallery conducts to several rooms resembling chapels, lined with bones variously arranged. One is called the "Tomb of the Revolution," another the "Tomb of Victims," and contain the bodies of those who perished either in the early period of the revolution, or in the massacres of September. Calculations differ as to the number of bones collected in this vast charnel-house, but it is estimated to contain at least the remains of 8,000,000 human beings. A map of the catacombs and quarries under the city has been very lately drawn up by the order of the municipal authorities. These excavations are 8,000,000 metres square in extent, or about  $\frac{1}{10}$  of the total superficies of Paris.

**CATACoustic**, relating to echoes. See **Acoustics**.

**CATAFALCO** (an Italian word of Greek origin), the decorated tomb of state erected in the *castrum doloris*. The catafalco for the final interment of Michel Angelo at Florence, was of unexampled magnificence.

**CATAGOGIA**, or feast of the return, a festival celebrated at Eryx, in Sicily, in honor of Aphrodite. It was preceded by the feast of the *anagogia*, during which it was believed that the goddess went over to Africa accompanied by all the pigeons of the neighborhood. They returned 9 days afterward, and the entrance of the first pigeon into the temple was the signal for general rejoicing and feasting. The whole district was said at this time to smell of butter, which was regarded as a sign that Aphrodite had returned.

**CATAGRAPHA**, or foreshortenings, are said to have been the invention of Cimon of Cleone, who probably flourished in the time of Solon, and drew the human figure in a variety of attitudes. He first made muscular articulations, indicated the veins, and gave natural folds to drapery. Pliny uses the term *catagraphia* to denote any oblique view of the countenance or figure, either in profile or otherwise.

**CATAHOULA**, a parish of Louisiana; area 1,970 sq. m.; pop. 7,132, of whom 3,523 are slaves. It is watered by the Washita, Tensas, Black, and Little rivers, several of which are navigable by steamboats through the parish and on its borders. Near the Washita river the surface is partly occupied by hills. The soil is

some parts is fertile, and lies upon a bed of sandstone. The productions in 1850 were 6,648 bales of cotton, 188,786 bushels of Indian corn, and 33,055 of potatoes. There are 14 churches and 1 newspaper, and 548 children attending school. The parish was organized in 1808. Capital, Harrisonburg.

CATALANI, ANGELICA, an Italian singer, born in 1784, at Sinigaglia in the pontifical states, died in Paris, June 12, 1849. Her father worked during the day in the shop of a jeweller, and in the evening played the horn in the theatre. Angelica, when only 7 years old, attracted general attention by the remarkable power and purity of her voice. People went in such numbers to the convent of St. Lucia, near Rome, where she received her education, to hear her, that the police had to check the pressure of the crowd. Angelica, however, continued to sing, and on leaving the convent in 1798 she passed through a course of scientific musical studies. Toward 1800, while her artistic culture was still rather incomplete, a theatrical manager in Venice prevailed upon her to appear as Lodoisca, in Mayer's opera of that name, and she was successful. For a year she continued to sing at Venice, and then, after making a tour through the different towns of Italy, she performed at the Italian opera of Lisbon. Afterward she went to Madrid, where the receipts of her first concert amounted to \$11,000. Subsequently she went to Paris, where for 2 concerts at St. Cloud Napoleon paid her \$900, beside a pension of \$210, and gave her the free use of the opera house for 2 concerts, of which the receipts amounted to \$9,000. In London she received \$13,000 for the first, and \$17,000 for each of the following 7 seasons, beside 2 benefits which yielded \$11,000, and permission to perform in the provinces. For some time she was connected with the management of the Paris opera in coöperation with her husband, M. Valabrègue, formerly a captain in the French army. In this enterprise she was not successful. Her clear, powerful voice electrified the English, especially in "God save the King;" but her influence over continental audiences was not so great. In 8 years she cleared about \$400,000. She sang in Germany, Denmark, Sweden, Poland, and Russia, returning also occasionally to her native country, and afterward again made her appearance in Paris, but without meeting with great success. In 1830 she withdrew from the stage, and devoted herself at Florence to the education of her 3 children, and at the same time established a free singing school for girls, on condition that they should adopt, in addition to their own name, that of Catalani. In June, 1849, during the revolution in Tuscany, she went to Paris with her daughters, but almost immediately after her arrival she fell a victim to the cholera. Her favorite airs in concert were *La Placida Campagna*, "the English anthem," and the violin variations of Rode. Whatever

exceptions may have been taken to her unsympathetic singing, and although the fact of her premature exercise of her profession, before she had fully mastered all its scientific details, was frequently apparent in her execution of long pieces, there was only one opinion as to the immense volume and the inexhaustible elasticity of her voice, the brilliancy and power of which was never surpassed. She left to her children a fortune of \$1,600,000.

CATALEPSY (Gr. *καταληψις*, seizure), a non-febrile affection, occurring in paroxysms, and characterized by a sudden deprivation of intelligence, sensation, and voluntary motion. The disease is so seldom met with that some well-known writers have doubted its existence, and have attributed the recorded cases to imposture. Bourdin (*Traité de la catalepsie*, Paris, 1841), who collected all the recorded facts within his reach, was able to unite but 88 well-characterized observations. The attack is often preceded by headache, confusion of mind, loss of memory, &c.; more commonly, however, nothing of the kind has been noticed. During the paroxysm the patient retains the position and expression of countenance he had at the moment of the seizure; the face is commonly pale, sometimes slightly flushed; the pupils are dilated; but contract on exposure to a strong light; the limbs can be moved with the exertion of a little force, and retain the new position which may be given them; if the patient is standing and is pushed, he makes no effort to save himself; if placed in a painful and constrained attitude, it is retained during the paroxysm. The unvarying, motionless attitude and fixed expression give a strange and corpse-like look to the sufferer. The duration of the attack is variable; sometimes it lasts but a few minutes, sometimes 12 or 14 hours; cases are recorded in which it has been prolonged to 20 or even 30 days. Many cases occur in which the attack is less characteristically marked, or in which a portion only of the symptoms is present. Although deprived of speech and voluntary motion, the patient is more or less conscious of what is passing around him. In Duncan's "Medical Commentaries," a case is related of a woman who in this state of partial catalepsy was taken for dead, and who was perfectly conscious of what was occurring around her, while her body was being laid out and prepared for interment. In ecstasy, a disease allied to catalepsy, and which by imperceptible degrees passes into it, the patient is insensible to every thing about him, while the mind is absorbed in some one object or train of ideas; the muscles are either relaxed or in a state of almost tetanic rigidity, while the patient speaks and sings, perhaps with greater readiness and ease than in his natural condition. This condition is frequently occasioned in nervous and hysterical persons by religious excitement, and is often produced in a similar class of persons by animal magnetism. It is one much more commonly assumed by impostors than true catalepsy. Both



catalepsy and ecstasy seem to be closely allied to hysteria; they occur for the most part in young females of nervous habit, and both the one and the other often commence or terminate in it; occasionally, however, as is likewise the case with some of the more ordinary manifestations of hysteria, they have their origin in serious disease of the brain. The age and history of the patient will help the intelligent physician to discriminate such cases. Some strong moral excitement is generally the immediate cause of the disease, but when it is already formed, or when the predisposition to it is very strong, a most trifling cause—a sudden noise, the surprise of an unexpected visit, &c.—may induce a paroxysm. In itself the disease is never fatal, and morbid anatomy throws no light upon it. In regard to the treatment, in the interval between the paroxysms means should be employed to improve the general health and give tone to the nervous system. During the paroxysm the feet may be immersed in a mustard foot bath and cold applications made to the head; of these, where it can be borne, the cold douche is the most effectual.

CATALOGUE (Gr. *καταλογος*, from *κατα-λεγω*, to enumerate), a list or serial registry of a collection of similar objects, as books, paintings, medals, plants, shells, or minerals. The term is most frequently applied to books, signifying an enumeration of the volumes contained in a library, disposed in a certain order. The arrangement may be in the alphabetical order of the titles of books, in the alphabetical order of the names of authors, or in a systematic order according to the subjects treated in the works. Of alphabetical catalogues there are 2 especially remarkable for the results of erudition which they contain, that of the Bodleian library in the university of Oxford, and that of the library which Cardinal Casanate bequeathed, in 1770, to the Dominicans of the Minerva at Rome. The former, which has been several times republished and enlarged, abounds in references to the various editions of old authors. The latter mentions the birth, country, and death of the authors, gives references to sources of information concerning them, and indicates those works which form part of great collections. Four volumes of this catalogue, extending to the letter I, were published between 1761 and 1788, under the editorial care of Audifredii; but the work was undertaken upon so vast a plan that it has not been completed. The catalogue of the library of the British museum, now in process of preparation, is arranged alphabetically, and the letter A alone embraces 16 volumes. Ordinarily, an alphabetical catalogue is only an index to a library; but a catalogue arranged in the order of the contents of books, has the additional advantage of showing the amount of literary labor which has been done in the different departments of learning and taste. When arranged alphabetically by the order of the authors, a catalogue may have something of a

biographical interest; but when arranged systematically by the natural order of the topics treated, it has a scientific interest proportionate to the completeness of the library catalogued. In joining to the classification by subjects an alphabetical table of authors, and another alphabetical table of the titles of anonymous works, the chief advantages of all the methods are combined, and the catalogue attains the highest degree of utility. A catalogue may either copy the arrangement of a library, or adopt a different order. One of the methods proposed for cataloguing the library of the British museum was to make the catalogue consist of a list of title pages put together without any order, but accompanied by 3 alphabetical indexes, one of subjects, and the other of authors. The oldest attempt to form a universal catalogue was the *Bibliotheca Universalis* of Conrad Gesner, published at Zurich in 1545-'48, which contained the titles of all the books then known in Hebrew, Greek, and Latin, with frequent summaries of their contents, judgments upon their merit, and even specimens of their style.—Various divisions of literature have been proposed as a basis for the classification of books. The learned French librarian, Naudé, in a catalogue printed in 1643, established 12 departments: theology, bibliography, chronology, geography, history, biography, the military art, civil law, canon law, philosophy, politics, and literature. In 1678, Garnier, the librarian of the college of Louis XIV., reduced these principal divisions to 4: theology, philosophy, history, and economy or jurisprudence. Early in the 18th century the bibliographer Martin adopted the 5 departments of theology, jurisprudence, the arts and sciences, belles-lettres, and history, which have since been usually observed in the catalogues and bibliographical systems of France. Haym, in his *Bibliotheca Italica*, published in London in 1726, made 4 great divisions: history, poetry, prose, and the arts and sciences. The learned Morelli, in his catalogue of the library of St. Mark of Venice, made more than 20 departments. Casiri, in his catalogue of the Arabic MSS. contained in the Escorial, distributes them in the following order, which is similar to that adopted for the printed books in the same library: grammar, rhetoric, poetry, philology and miscellanea, lexicons, philosophy, politics, medicine, natural history, jurisprudence, theology, geography, and history. Germany followed for a long time the confused bibliographical arrangement of Fabricius, who published a catalogue, in 6 volumes, in 1717. This work contains notices concerning authors, editors, and commentators, references to translations, criticisms, or apologies, and remarks concerning the contents, and concerning anonymous or doubtful authors; but there is little regularity in the disposition of the rich materials which the work supplies. Probably the most methodical and detailed bibliographical system that has ever been attempted is that of Ersch, the

librarian of the university of Jena, contained in his "General Repertory of Literature," which appeared in 1790. In this scheme there are 16 leading divisions: general literature, philology, theology, jurisprudence, medicine, philosophy, pedagogy, science of state, science of war, knowledge of nature, knowledge of the arts and trades, mathematics, geography and history, the fine arts, literary history, and miscellanea. Denis, an officer in the imperial library of Vienna, in an "Introduction to the Knowledge of Books," the 2d edition of which appeared in 1796, explains a bibliographical system which, according to him, would form a complete encyclopædia. It is composed of 7 principal parts: theology, jurisprudence, philosophy, medicine, mathematics, history, and philology. In England the attempt has often been made to adopt in cataloguing the genealogical tree of human knowledge furnished by Lord Bacon. Yet experience has proved that there is a striking difference between the classification of the branches of learning, and that of the books in which learning is contained. Books are so much more various and manifold than the human faculties, that a valuable bibliographical system must always be the fruit of experience rather than a product of genius. All the attempts that have been made to establish bibliographical divisions upon metaphysical principles have been fruitless. Conyers Middleton in 1723 published a method for arranging the library of Cambridge, which, although it recognizes 9 departments instead of 5, has a close affinity with the method prevalent in France. The catalogues which have since been published by the best English librarians are usually divided into 6 classes: miscellaneous literature; theology and ecclesiastical history; laws and jurisprudence; medicine, surgery, physiology, and chemistry; works in Hebrew, Arabic, Greek, Latin, &c.; and educational works.—Among catalogues remarkable for the large number of books which they mention are the *Bibliotheca Thottiana*, 12 vols., Copenhagen, 1789-'95; *Catalogue du Duo de la Vallière*, 9 vols., Paris, 1783-'88; and the *Bibliotheca Heberiana*, 9 vols., London, 1834-'36. The *Catalogus Bibliothecæ Harleianæ*, by Maittaire, 5 vols., London, 1743-'45, the "Catalogue of the Roxburgh Library," London, 1813, Clement's *Bibliothèque curieuse*, 9 vols., Göttingen et Leipzig, 1750-'60, and Dibdin's *Bibliotheca Spenceriana*, 4 vols., London, 1814-'15, are especially valuable for their mention of rare and costly books and old editions. Important with reference to Hungarian history is the catalogue of the library of Count Széchenyi, Oedenburg, 1791; to classical literature, that of Count Rewiczki, Berlin, 1794; to Italian literature, those of Capponi, Rome, 1747, of Ginguené, Paris, 1817, and of Libri, Paris, 1847; to the fugitive writings during the period of the French revolution, that of Pixérécourt, Paris, 1838; to French dramatic literature, the *Bibliothèque*

*dramatique* of Soleinne, Paris, 1843, et seq.; and to oriental literature, the catalogues of the libraries of Langlès, Paris, 1825, and of Silvestre de Sacy, 8 vols., Paris, 1842-'45. The "Construction of Catalogues of Libraries," by C. C. Jewett, the second edition of which was published at Washington in 1858, contains many valuable rules and suggestions.

CATALONIA (Sp. *Cataluña*), an ancient division of Spain, lying between lat. 40° 30' and 42° 51' N., and long. 0° 15' and 8° 21' E. Area 12,180 sq. m. Pop. 1,250,000. It is bounded on the N. by the Pyrénées, E. by the Mediterranean, S. by Valencia, and W. by Aragon. Catalonia is now divided into 4 provinces, viz.: Barcelona, Tarragona, Lerida, and Gerona. The face of the country is much broken by spurs of the Pyrénées. Some of these mountain ranges diverge toward the Mediterranean; others, of which the chief is the Sierra de la Llena, pursue a S. W. direction to the Ebro, and form a water-shed in which 26 rivers have their rise, and flow either westward to the Ebro, or eastward to the sea. The principal of these streams are the Segre, a tributary of the Ebro, the Noguera Pallaresa and Noguera Rivagoranzo, tributaries of the Segre, the Llobregat, Francolí, Tordera, Ter, Flavia, and others. None of these are navigable to any great extent. The general grade of the country is a descent from the mountain altitudes of the Pyrénées to the plateaus of upper Catalonia, and thence to the plains which skirt the Mediterranean. Most of the inland mountains are of granitic formation, those near the coast are limestone. Traces of volcanic origin are found especially in the vicinity of Barcelona. Valleys of remarkable fertility intersect the mountains. Such are the plateau of Urgel, and the valleys of Cerdagne, Tarragona, Vallez, La Selva, Igualada, Cervera, Ampurdan, and Lerida. About  $\frac{1}{4}$  the surface of the province is susceptible of cultivation, the rest consisting of rocks, barrens, and woodlands. Forests of beech, pine, elm, oak, and cork are found in the mountainous districts. Minerals abound. Iron, copper, lead, and manganese are found. Coal is met with in quantity, but it has been turned to little account. Of alum, nitre, and rock salt, the supplies are inexhaustible. At Cardona is a mound of pure salt, 500 feet in height and 8 miles in circumference. Other geological peculiarities are observable. Near Olot, 55 m. N. from Barcelona, is a remarkable district of extinct volcanoes. Montserrat is a single and precipitous mountain, composed of a number of conical hills heaped in confusion one over another, and broken into fantastic shapes of parti-colored limestone. A Benedictine monastery is perched on the cleft of a hill. Mineral and hot springs are found in various districts, as are crystals, amethysts, topaz, jasper, and marbles. The climate of Catalonia varies with the altitude of the region, but is in general temperate, the heat being moderated by sea or mountain breezes. The country is con-

sidered healthy, the interior more so than the coast. Although the orange, lemon, almond, olive, and fig grow on the plains, they are produced in less abundance than in other districts of Spain, but orchard fruits ripen in perfection. The vine is exceedingly productive, and wine is the staple export. Agriculture is further advanced in Catalonia than in any other part of Spain. This is partly owing to the industrious character of the people, partly to the nature of the soil, and in a considerable measure to the more equitable tenure of land which prevails in the locality. All kinds of grain are cultivated and consumed at home, leaving no surplus for export. The soil is usually a light loam, easily worked by a pair of cattle. Irrigation being necessary to make it productive, it is found profitable to grow wine and oil in preference to breadstuffs. Flax, hemp, dye-stuffs, honey, and wax are produced in considerable quantity. Silk growing is but little attended to, and the raising of wool and cattle is of comparatively small extent. Since the liberation of the South American provinces from their relations with Spain, the trade of Catalonia has greatly fallen off. The shoe trade, calico weaving, and ship building, which were formerly important branches of industry, have almost ceased to exist. Activity, however, continues in the fabrication of silks, velvets, ribbons, hosiery, linens and laces, leather, hats, cordage, brandy, together with cannon and small arms, glass, soap, hollow ware, and copper utensils. These are exported to France, England, and Holland, in exchange for textiles of finer make than the local factories produce, jewelry, codfish, herrings, and other articles of consumption. Along the coast a large proportion of the inhabitants are engaged in the fisheries, but there are few good harbors. The ports are Barcelona, Mataro, Tarragona, Palamos, Ampurias, Cadaques, and Alfagues or San Carlos, at the mouth of the Ebro. Railways connect Barcelona with Arenys *via* Mataro, and the northern Catalonian railway goes from Barcelona to Granollers.

CATALPA, a genus of plants, belonging to the natural order *bignoniaceae*, whose generic characteristics are a 2-parted calyx, a bell-shaped, swelling corolla, 5 stamens, 2 of which only are fertile, a long, slender, cylindrical pod, and broadly winged seeds. There are 8 species, all of them trees, with simple leaves and panicked, terminal flowers. The *C. syriacifolia* (Loud.) is indigenous in the southern parts of the United States, and is cultivated as an ornamental tree in most of the cities of the northern states. It is distinguished by its silver-gray, slightly furrowed bark, its wide-spreading head disproportioned in size to the diameter of its trunk, the fewness of its branches, and the fine pale green of its very large heart-shaped leaves. Its showy flowers are white, slightly tinged with violet, and dotted with purple and violet in the throat. They are succeeded by pods, often a foot in length,

which hang till the next spring. In its natural locality, this tree frequently exceeds 60 feet in height, with a trunk from 18 to 24 inches in diameter; but in Massachusetts it dwindles to a mere shrub, and is often killed by the frost. It is cultivated in gardens in England, and on the continent of Europe. One of the oldest and largest catalpas in England is in Gray's Inn gardens, and is said to have been planted there by Lord Bacon. In parts of Italy and in the south of France, the catalpa is planted as a wayside tree, and along the avenues to country villas. It may be propagated either by seeds or from cuttings of the root. It usually reaches the height of 20 feet in 10 years, soon after which it begins to blossom. The wood is light, of a very fine texture, susceptible of a brilliant polish, and often used in cabinet-making.

CATALYSIS, CATALYTISM, CATALYTIC ACTION (Gr. *κατα*, from, and *λυω*, to loose). When chemical decomposition is brought about in any compound, and its ingredients are made to enter into new combinations in consequence of the introduction of another body, which does not itself form a part of any of these combinations, nor lose either of its constituents, but acts in some manner not understood, apparently by its mere presence or contact, to excite this chemical action, the force is called by Berzelius *catalytic*. A small quantity of yeast thus acts to cause a mixture of sugar and water to ferment, and form the new combinations of carbonic acid and alcohol; the addition of  $\frac{1}{1000}$  part of oxalic acid to boiling sirup of sugar, causes it to become fluid as water, and refuse to crystallize. Liebig objects to this introduction of a new theoretical force, which does not actually explain the phenomenon by giving it a name, but tends to satisfy the understanding with a plausible explanation, and thus hinder further research.

CATAMARAN, a name given both in the East and West Indies to a kind of raft used near the seashore. Those used at Madras consist of only 8 logs of the cocoa tree lashed together, but on the coast of South America they are made from 70 to 80 feet long, and from 20 to 25 feet wide. They are particularly serviceable in crossing heavy surfs near a shallow and shelving shore.—Catamaran was also the name given to the flat-bottomed boats with which the French, at the commencement of the present century, meditated the invasion of England.

CATAMARCA, a department of the confederation of La Plata, in South America. It lies E. of the Andes; is extremely fertile, produces corn and cattle for home consumption, supplies the adjacent departments with cotton, and exports red pepper to Buenos Ayres. Pop. 50,000; capital, Catamarca.

CATAMENIA (Gr. *κατα*, according to, and *μην*, month), or menses, a monthly flowing of sanguineous fluid, which occurs in the female economy. The function of menstruation generally commences at the age of puberty, and

terminates at the "critical period," or "change of life;" including a period of some 30 years, between the ages of 14 and 45. The blood of the catamenial flux is exuded from the vessels of the uterus, and escapes through the vagina; the flow generally returns every 28 days, and continues from 3 to 6 days. The amount discharged varies from 4 to 8 oz. in most cases, but every woman is a law unto herself in this respect; as that which would be merely normal in some women would be profuse in others. The first menstrual flow is generally preceded by languor, pains in the back, headache, chilliness, &c., which usually disappear when the discharge takes place. The after occurrences are often unaccompanied in healthy females by any premonitory or attendant symptoms. During the whole of a woman's menstrual life she is capable of bearing children. After it is closed, she ceases child-bearing.—The influence of climate in advancing or retarding the period of puberty and menstruation, has been shown by recent observation to have been formerly much over-rated, the average period being much the same all over the world, and exceptional cases as numerous in one region as another. Mr. Robertson has shown, from statistical evidence, that menstruation does not occur more early in the negroes than in the white female, and Dr. Vaigas affirms that precocious menstruation is more common in the white than in the colored races. Early marriages in Hindostan and other warm climates, then, do not depend on natural precocity, but on the habits and customs of the country.—The uterus is congested during menstruation, and so are the ovaries and the Fallopian tubes; the tissues of the vagina are relaxed, and the *os uteri* is softened and swollen; these conditions disappear when the flow ceases, and the parts return to their natural state. During pregnancy and lactation, the menses usually cease, and they may also be suppressed from other local causes. Vicarious menstruation sometimes takes place as a means of obviating the ill effects of suppressed menstruation, by substituting a similar discharge from some other part. It occurs from the gums, the nostrils, the lungs, the stomach, or even from the eyes, and other parts of the body.

CATAMOUNT. See COUGAR.

CATANDUANES, an island of the Philippine group, S. E. of Luzon, lat. 13° 47' N., long. 124° 10' E., is 86 m. long from N. to S., and averages 19 m. wide. The inhabitants are an industrious race, and live by agriculture, fishing, and the construction of a light species of boat which they sell to the adjacent islanders.

CATANIA (anc. *Catana*), a seaport city of Sicily, and capital of the province of the same name, situated on the E. coast of the island, on the shore of the gulf of Catania, which is an inlet of the Mediterranean, at the foot of Mount Etna. Area of the province, 1,761 sq. m. Pop. in 1856, 411,882; pop. of the city about 60,000. It is esteemed the handsomest city

in Sicily, with wide and regular streets, and numerous and splendid public buildings. Its vicinity to Etna has introduced the use of lava for various purposes. The streets are paved with it, the finest buildings made of it, and it is formed also into ornamental chimney-pieces, tables, and toys.—The ancient Catana suffered severely in the Roman wars. The modern city has been several times nearly destroyed by earthquakes and eruptions of Etna, but has been rebuilt each time with greater beauty than before. It has many remains of the Roman city, among which are an amphitheatre, a theatre, and ruins of baths and temples. Its principal public edifices are the cathedral, rebuilt since the earthquake of 1693, the senate house, the university building, frequented by about 500 students, and a vast Benedictine convent. The city gives title to a bishop, has an upper tribunal, and a board of trade. The surrounding country is famous for its excellent wine, and also for its corn. The annual production of wheat is about 400,000 qrs., of which 800,000 are used for home consumption, and the rest for exportation. The production of olive oil is also considerable; and of lemons and oranges about 100,000 boxes are exported annually. The other principal articles of trade are almonds, figs, hemp, flax, soda, manna, cheese, macaroni, amber, cantharides, lava, and snow from Etna, which is exported to Malta. Among the manufactures must be mentioned those of linen and silk; the carvings of amber, lava, marble, and wood, wax bleacheries, and distilleries of licorice and oil. The port of Catania ranks as the third port in Sicily, the annual entrances and clearances of vessels amounting collectively to about 2,000, and carrying cargo to the value of \$500,000. Next to Messina, Catania is the chief mart for silk, the united exports of both cities amounting annually to about 450,000 lbs., beside the silks retained for the local manufactories. In 1848 and 1849 Catania was disturbed by violent popular outbreaks, especially on April 6 of the latter year, when the Neapolitans expelled the Sicilians from the city.

CATANZARO, a town of Naples, capital of the province of Calabria Ultra, situated on a mountain near the gulf of Squillace, 80 m. S. S. E. from Cosenza; pop. 12,000. It suffered severely from an earthquake in 1783, which overthrew some of the principal buildings. It still has, however, a cathedral, several churches and convents, a castle, a royal academy of sciences, and numerous schools and charitable institutions. Considerable trade is carried on in cattle, corn, and wine, and there are manufactures of silk and velvet. The women are reputed the handsomest in Calabria.

CATAPHRAOT (Gr. *καταφρακτος*, mailed), in ancient military art, a horseman in complete armor. The cataphraets were heavy-armed cavalry, the horses of which were also covered with defensive armor, with scales or plates of metal.

**CATAPLASM** (Gr. *καταπλάσμα*, from *καταπλάσσω*, to spread over, to plaster), a poultice, or soft substance applied externally to some part of the body, either to repress inflammation and allay pain, or to promote inflammation or its consequences, and lessen the pain attending it. For the former purpose it is applied cold, and often contains a preparation of lead to increase its astringent and refrigerating power; for the latter, it is used at different degrees of temperature. When intended to hasten the progress of inflammation and lead to suppuration, poultices should be of as high a temperature as the part will bear; but of a lower temperature when used as mere emollients. Cotton-wool, steeped in water, and bound to the part with a light bandage, is a very simple and efficient application, in most cases where a cold poultice is required to allay pain, and repress inflammation.

**CATAPULT** (Gr. *κατα*, against, and *πύλλα*, to hurl), an ancient military engine for throwing stones, darts, and other missiles, invented in Syracuse, in the reign of Dionysius the elder. It acted upon the principle of the bow, and consisted of wood frame-work, a part of which was elastic, and furnished with tense cords of hair or muscle. Catapults were of various sizes, being designed either for field-service or bombardments. The largest of them projected beams 6 feet long and weighing 60 lbs. to the distance of 400 paces, and Josephus gives instances of their throwing great stones to the distance of  $\frac{1}{2}$  of a mile. The Romans employed 800 of them at the siege of Jerusalem. From the time of Julius Cæsar it is not distinguished by Latin authors from the *ballista*, which was originally used only for throwing masses of stone.

**CATARACT**, a disease of the eye in which there is an opacity of the crystalline lens or of its capsular investment. It is most common in old persons, in whom it seems to be the natural consequent of age; but it also occurs in infants, and is even congenital; it appears to be more frequent in cold and damp climates than in warmer regions, and it is certainly hereditary in many instances. Among the exciting causes, especially of the capsular form, are wounds and inflammations of the internal eye; but the ordinary cause is the diminished nutrition of the organ in common with others in advancing age. True cataract may be either lenticular, capsular, or capsulo-lenticular, according as the seat of the opacity is in the lens itself, in its capsule, or in both at the same time. Certain cases of opacity external to the crystalline apparatus have been called false cataracts, and may be caused by the effusion of lymph, blood, or pus, or by false membranes; secondary cataracts are those which follow the surgical operations for the extraction or depression of the lens. The lenticular cataract may vary in hardness from stony to gelatinous; its opacity is rarely uniform, being generally thickest in the centre and thinnest on the edges; in some cases the opacity begins at the circumference

in rays which slowly converge to the centre; the color varies from pearly white to amber yellow. The capsular cataract, which Velsæus considers more common than the lenticular, offers a great variety of colors and streaks, and may occupy either the anterior or posterior surface, or both. In the last form of cataract, both the lens and its capsule are involved, with the varieties common to both. The physical sign of cataract is a more or less troubled appearance behind the pupil, of a yellowish color, deepest in the centre, and becoming more distinct as the disease progresses; the rational sign is a gradual diminution of vision, accompanied by the sensation as if a cloud, specks, spiders' webs, or snow-flakes, were passing before the eyes; objects are seen best in certain positions of the head, as when turned on one side, and during the evening or in the shade when the dilated iris permits more light to enter the pupil; on looking at a candle the flame appears surrounded by a thick bright haze. The progress of the disease is very slow, generally unaccompanied by fever, pain, or any disturbance of the general health. It is very rare for a person to be unable to distinguish day from night. M. Sanson has proposed an excellent catoptric test for the detection of cataract by the reflection of light. When a lighted candle is held before the eye of a healthy person, 3 images of it may be seen: 1, erect, moving upward when the candle is moved upward, produced by reflection from the cornea; 2, also erect, produced by reflection from the anterior surface of the crystalline capsule, and moving upward with the candle; 3, very small and inverted, reflected from the posterior surface of the capsule, moving downward when the light is carried upward. In cataract, the inverted image is from the beginning indistinct, and soon disappears entirely; the deep, erect one is also soon rendered invisible. By dilating the pupil with belladonna, this experiment is rendered easy and striking. Cataract is for the most part remediable only by a surgical operation; certain forms, caused by inflammation of the capsule, may disappear with the exciting cause without an operation; and cases are on record of the spontaneous cure of lenticular cataract by the rupture of the capsule and the escape of the lens into the anterior chamber of the eye, where it is gradually dissolved.—From the earliest antiquity surgeons have attempted to destroy cataract by means of needles and knives of various forms. Whenever the disease is confined to the lens and its capsule, and the eye in other respects is healthy, and the patient not too young or too old, an operation may be attempted with a prospect of success; in infants, and in persons under 20 years of age, both eyes may be operated on at once; after the age of 80, the chance of a successful issue is generally small. Before submitting persons to this operation, it is well to prepare them a day before by a mild diet and a gentle laxative, and to allay

any inflammatory tendency of the organ; and then to smear belladonna ointment around the orbit, or to put a few drops of its fluid extract into the eye, for the purpose of dilating the pupil to its utmost extent. All operations for cataract reduce themselves to 8, which have for their object either to displace the lens, to break it up, or to remove it from the eye:

1. Operation for depression of the lens, or couching. The description of this may be found even as far back as Celsus; it has undergone many modifications in modern times. The instrument employed is a fine needle, either slightly curved at the end or straight, with the point spear-shaped; Scarpa's needle is slightly curved at the end. When the needle is passed through the sclerotic, as ordinarily, the operation is called *scleroticomy*; when it is passed through the cornea, *keratonyxis*. Different needles are preferred by different operators; but, as in the case of the stethoscope, that instrument is the best which the surgeon is accustomed to. In *scleroticomy* the needle, held like a pen, is passed through the sclerotic, perpendicularly to its surface, a line or two from the cornea and a little below its transverse diameter; the concavity of the instrument is turned down, in order to separate rather than to divide the fibres of the membrane; when the needle is fairly in, its concavity is turned backward, so that it may pass under and before the lens without touching the iris or the capsule; when it has reached as far as the pupil, the capsule is lacerated by delicate circular movements of the point; then the needle is applied directly to the lens, which is pushed outward and backward to the bottom of the globe, out of the line of the axis of vision; it is held there a short time, that the cells of the vitreous humor, into which it is pushed, may resume their position around it, and thus prevent its reabsorption in the line of the pupil. Some surgeons prefer the operation by reclinacion, which consists in turning the lens backward from an upright to a horizontal position; and some always recline the lens before they depress it. In *keratonyxis*, the needle is passed through the cornea, about  $\frac{1}{4}$  of an inch from the sclerotic, on its lower and exterior portion, and is directed through the dilated pupil to the lens, whose capsule it is made to lacerate; and, if possible, the lens is depressed, reclined, or broken up. This method is objectionable on account of the danger of wounding the iris, and of the difficulty of reaching the lens, and is applicable only to exceptional cases. After the operation, the eye should be lightly covered, and the patient should remain in bed in a darkened room, with the head raised, and be kept on a low diet for a few days; after 4 or 5 days in ordinary cases, a little light may be gradually let into the room, and at the end of 8 weeks the eye may be generally left uncovered. The accidents most to be feared are inflammation of the iris, choroid coat, and retina, which should be treated by antiphlogistic measures.

2. The operation for breaking up the lens, without depressing it, is very easily performed, and excites very little inflammation; but it requires frequent repetition, is slow in its progress, and is adapted only to soft and especially to congenital cataracts. The needle is inserted just as in the method for depression, the capsule is divided, and the lens is freely broken up without removing it from its place; the cataract is thus brought into contact with the aqueous humor, and is gradually dissolved by it. 8. In the operation for extraction, the cornea is incised through rather more than half its circumference, the capsule is lacerated, and the lens is extracted from the eye entire; it is performed with a triangular knife, with sharp point, straight and blunt back, the edge slanting obliquely, and the blade growing wider and thicker as it approaches the handle; this kind of knife cuts by the simple motion of pushing, and fills up the incision as it makes it, thereby preventing the escape of the aqueous humor. The cornea may be cut on its inferior or superior half, or obliquely on its external and lower portion, each of which has its special advocates. When the lower half is cut, the knife, with its edge downward and forward, is passed into the external side of the cornea, perpendicular to its axis, a little above its transverse diameter, and about a line from the sclerotic; passing in front of the iris, the point is made to cut its way out on the inner opposite surface; the cutting of this flap constitutes the first period of the operation, after which the lids are permitted to be closed for a few seconds. Taking care in the subsequent steps of the operation not to make pressure upon the globe, the surgeon raises the flap, and, by means of a proper needle, lacerates extensively the capsule; if, at this time, the lens does not of itself come forward into the anterior chamber, gentle and properly directed pressure will cause it to come out; to complete the operation, it is sometimes necessary to remove also the pieces of the divided capsule. When the lower half of the cornea is opaque or in a condition unfavorable to cicatrization, or very small, Wenzel, Richter, and Jäger recommend the section of the upper half; the steps of the operation are about the same, though perhaps more difficult to execute; it offers the advantages of presenting less liability of the iris being wounded, of the vitreous humor escaping, and of the lips of the section being separated by the edges of the lids. By the oblique incision, which is the favorite in France, the lids could not possibly interfere with the apposition of the edges of the wound. More care is required after extraction than after depression, to avoid inflammation; after it is certain that the patient can distinguish objects, the eye is lightly covered and the person confined to bed in a dark room, with the head but slightly elevated.—Of these operations, extraction removes with certainty the obstructing lens, is very little painful, does not wound the ciliary vessels or nerves, the choroid, or the retina; but it may cause deformity of the pupil or the escape

of the vitreous humor; the edges of the wound may not readily heal, or may ulcerate, with hernia of the iris or opacity of the cornea. Depression leaves a permanent cause of irritation in the eye, and the lens is liable to reascend; the needle perforates the choroid and retina, and may cause inflammation of the internal eye; but there is no danger of the escape of the vitreous humor, nor of spots or ulcers of the cornea, nor of hernia of the iris, nor of immediate evacuation of the globe. Depression is best in children and intractable persons; where the eyes are small and deep-seated, the cornea flat, or the conjunctiva irritated. When the cataract is soft and the pupil small or adherent, extraction is best in old persons; in adults with a large anterior chamber and the eyes sound; and when the cataract is hard or membranous. Convex spectacles are necessary, under proper restrictions, to supply the place of the extracted crystalline lens.

CATARACT, the sudden fall of a large body of water over a precipice. The term cascade is applied to a smaller body of water falling from a great height. Rapids are formed by the impetuous flow of water down an inclined plane and over rocks. The American rivers furnish sublime waterfalls, especially those formed by the currents issuing from great lakes. The waters of Lake Superior at its very outlet form the falls of St. Mary (Sault Ste. Marie). A river a mile wide descends in a rapid current 22 feet within  $\frac{1}{4}$  of a mile. A body of water, apparently as large as that which flows over the precipice of Niagara, rushes unceasingly from the great reservoir above, whirling and foaming among the rocks, and presenting an impassable barrier to all modes of navigation except the frail barks of the Indian and French voyageurs. Among the whirlpools and eddies of these falls the birch canoe glides like an arrow past the threatening rocks the least touch of which would rend it in pieces. Its course is controlled and directed by the steady and strong arm of the Indian giving to it a greater speed than that of the waters upon which it is borne. The falls are lost below in the smooth waters of St. Mary's strait, and thence these pass tranquilly on through the great basins of Lakes Huron and Erie, till in the Niagara river they again rush impetuously down the rapids which lead to the great cataract. This is the most famous in the world, being the largest body of water precipitated from so great a height. The fall on the British side is 150 feet, on the American 164 feet. (See NIAGARA.) Following the course of these waters through Lake Ontario, their next sudden descent is in the St. Lawrence river, where in a distance of about 9 miles above Montreal occur a succession of remarkable rapids, known by the names Coteau du Lac, the Cedars, Split Rock, and the Cascades. In consequence of the great depth of the water, these rapids are safely navigated by steamboats descending the river, their course being controlled, as is that of the birch canoe, by giving to them

additional speed. The falls of Montmorency are a remarkable cascade 250 feet high, upon a small stream 6 m. N. E. of Quebec. The Catskill falls, among the Catskill mountains in New York, are celebrated for their picturesque beauty. The cascades are supplied from 2 small lakes, the waters of which, after their fall, pass into a deep ravine, whose precipitous banks are from 1,000 to 1,500 feet in height. (See CATSKILL MOUNTAINS.) Numerous cascades are met with in California, which are described in the article CALIFORNIA. In the southern part of the American continent, the falls of Tequendama are the most prominent. They are formed by the descent of the river Funza from the elevated plain of Santa Fé de Bogota. The height of the falls is 574 feet, and the column of vapor that rises from them is visible at the distance of 17 miles. (See BOGOTA.) Among the waterfalls of Europe, that at Trollhætta, in Sweden, is noted as the highest for the body of water. In Scotland they occur frequently, though usually of small size, and dependent for their interest and beauty upon the wildness of the surrounding scenery and the dark and rocky glens through which they rush. The cascades in the Alps are perhaps among the highest in the world. The most remarkable are the Evanson, which has a descent of upward of 1,200 feet, and the Orco, which has a vertical fall of 2,400 feet. The cataracts, or more properly the rapids, of the Nile are also celebrated.

CATARRH, a non-inflammatory disease, characterized by an increased secretion of mucus from the glands of the mucous membranes; the name is popularly confined to disease of the membrane of the air-passages, but it should be extended to that of the intestinal, urinary, and even genital mucous membranes. In the time of Hippocrates, it was supposed that the secretion of catarrh was produced in the brain, whence it might escape by the ears, eyes, nose, and descend into the throat or along the spinal cord; and some modern empirics have put forth a similar idea as their own. Another explanation was that a part of the ingested liquids, rising in vapor to the brain, was condensed by the arch of the skull, as in the top of a retort, and reappeared in this fluid secretion; this was a favorite theory of Galen. It was not until the time of Van Helmont, and after him of Schneider, in the middle of the 17th century, that the fluid of catarrh was known to be secreted by the glands of the mucous membrane. Though a local affection, it may be the result of a constitutional cause, as Sydenham has maintained, of many dysenteries, diarrhoeas, and similar diseases of the mucous membranes observed by him in the fever of 1675. Children and adults of the lymphatic temperament are most subject to catarrh; and it occurs most frequently in cold and damp seasons, accompanied by sudden changes of temperature, and in individuals weakened by insufficient food, foul air, and mental anxiety; it also occurs epidemically. Catarrh is rarely accompanied by

any constitutional disturbance; the principal symptoms are sneezing, increased secretion of tears and mucus, and a snuffling nasal respiration, when it is in the head; in this form, or *coryza*, in infants, there may be feverish symptoms, and considerable difficulty of breathing, interfering with the act of sucking; in older children, the eruptive diseases most commonly commence with *coryza*. If in the throat, there may be wheezing respiration, huskiness or hoarseness of the voice, and a sense of fulness from the swelling of the membrane. When the disease extends to the lungs, it may easily degenerate into an inflammatory bronchitis, or prove dangerous from the mere accumulation of thick mucus; but it more commonly, especially in old persons, takes on the form of chronic *bronchorrhœa*, with a very profuse secretion of colorless frothy matter, requiring great effort for its expulsion. In like manner the stomach may be affected in old age, giving rise to *gastrorrhœa*, without inflammation, characterized by the vomiting of mucous matter resembling the white of an egg, and seriously interfering with the digestive process. So, many forms of diarrhoea consist essentially in a catarrh of the intestinal mucous membrane, with an unnatural secretion of the muciparous glands of this canal. In many cases of catarrh of the bladder, the urine is loaded with mucus, and the state of its membrane highly irritable, without being positively inflamed. Catarrhal diseases often occur epidemically, under the name of catarrhal fevers, in which there seems to be a morbid disposition in all the mucous membranes to secrete an excess of mucus. Beside the conditions already mentioned, the genital mucous membrane may be affected, constituting some forms of *leucorrhœa* and *blennorrhœa*; the conjunctiva may also be attacked, giving rise to catarrhal ophthalmia; some of these conditions, especially the last 2, may become contagious, without the usual specific origin. These catarrhal diseases are not generally dangerous; but they are apt to become chronic and exceedingly difficult to remedy, when the lungs, stomach, intestines, and genito-urinary organs are affected, and especially when occurring, as they often do, in old and debilitated persons. The treatment of the mild forms is entirely expectant; in the chronic stages, the principal dependence is on tonics and stimulants, especially quinine, and on local applications of a stimulating and alterative character whenever the seat of the disease is directly accessible. They form some of the most obstinate cases the physician has to manage, both from the difficulty of direct medication, and from the age and weakness of the great majority of persons who suffer from them.

CATASAUQUA, a new and thriving post borough of Lehigh co., Pa., pop. 1,500, on the left bank of the Lehigh river, 8 m. above Allentown, contains a number of churches, 4 or 5 hotels, and is well supplied with water by a system of waterworks. The Crane iron works,

said to be the largest smelting establishment in the United States, are situated here. One of the furnaces has turned out in a single week the extraordinary amount of 235 tons of iron.

CATASTROPHE (Gr. *καταστροφή*, revolution), the change or revolution which takes place in and terminates a dramatic action. The ancient drama was divided into the protasis, catastasis, and catastrophe, or the introduction, epitasis, continuance, heightening, and development or conclusion. The plot being laid in the preceding parts, and raised to the highest degree of intricacy and portentousness in the catastasis, it became the most difficult task for the dramatic poet to produce properly the catastrophe, to introduce it as something long expected and foreseen, or as something disappointing all expectation, and essentially untrue and incredible. To produce the latter kind of catastrophe, the Greeks sometimes made use of the *deus ex machina*, a divine agency suddenly introduced to cut the knot which the poet could not untie. In modern tragedies and higher comedies, the catastrophe is often placed in the inward development of character, and is produced necessarily, like the working out of a cause, from a series of preceding situations. The difficulty of devising catastrophes which shall be at the same time natural and exciting, is seen in the numerous dramas which abound in striking situations, but which have neither æsthetic nor psychological significance.

CATAWBA, a co. in the W. central part of North Carolina; area 250 sq. m.; pop. 8,862, of whom 1,569 are slaves. It derives its name from the Great Catawba river, which forms its N. and E. boundaries. The surface is diversified, the soil fertile, and drained by the S. Catawba river. Its productions in 1850 were 52,190 bushels of wheat, 65,674 of oats, 855,185 of Indian corn, and 6,086 lbs. of tobacco. There were 2 iron foundries and one tannery. Iron ore is abundant. This co. was formed from the N. part of Lincoln in 1842. Capital, Newton.

CATAWBA, or GREAT CATAWBA, a river of N. and S. Carolina. It rises in the Blue Ridge, in Burke co. of the former state, flows nearly E. through the gold region of N. C., makes a bend to the S. at the W. border of Iredell co., and enters S. C. near the mouth of the Little Catawba, about 15 m. from Yorkville. After reaching Rocky Mount in this state, it takes the name of the Wateree, and ultimately unites with the Congaree to form the Santee. The length of the Catawba is about 250 m.; of the Wateree, 100 m.

CATAWBA WINE. The Oatawba grape was first discovered in a wild condition about 1801, near Asheville, Buncombe co., N. C., near the head waters of the Catawba river. About a quarter of a century afterward the grape was found by Major Adlum, in a garden of a German near Washington, Gen. Davy, of Rocky Mount, on the Oatawba river, having been the supposed original transmitter of a few plants to that city during the period of his



senatorship, some time previous to 1816. Major Adlum wrote, before his death, to Mr. Longworth, of Cincinnati, who procured some of the Washington grapes, and who was the first to experiment with them on a large scale: "I have done my country a greater benefit in introducing this grape to public notice, than I would have done if I had paid the national debt." The wine produced by Major Adlum was sweet and agreeable, but sugar was added to the must. Mr. Longworth, however, abstained from any admixture of sugar or spirit, so as to produce the pure fermented juice of the grape. From Cincinnati the grape culture has spread along both banks of the Ohio to Pittsburg and Cairo, and in a southerly direction through Kentucky and Tennessee to Alabama, and westward into Missouri. The juice of the grape is manufactured either into still wine or sparkling wine; the latter, which is most in demand, containing an addition of alcohol. The wine is mostly white, though some red wine is made. A sample of Catawba, 7 years old, was proved to contain from 11 to 11½ per cent. of alcohol. According to the census of 1850, the total production of all kinds of wine in the United States was 221,249 gallons, showing an increase of 96,515 gallons over the production of 1840. But this increase, great as it was, dwindles into insignificance when compared with the rapid strides which the production has made within the last 8 years; the credit of pushing it to its utmost extent being especially due to the population of German birth or descent in the west and north-west. The annual yield in the Ohio valley alone averages now 500,000 gallons, and in the whole country it cannot fall much below 2,000,000 gallons, or, at 90 cents per gallon when new, below a value of \$1,800,000. Of the 500,000 gallons produced in the neighborhood of Cincinnati in 1856, 40,000 were made into sparkling wines, and the rest drunk in the pure and simple state. The sparkling Catawba of Mr. Longworth's cellar of 1848 was peculiarly celebrated for its flavor and purity. The wine-houses of Mr. Longworth in Cincinnati have been, for the last 9 years, under the direction of an accomplished wine chemist from Rheims. His mode of preparation is thus described: "In the spring following the pressing of the grapes, the wine, which has meanwhile undergone the vinous fermentation, by which 10 or 11 per cent. of alcohol is developed, is mixed with a small quantity of sugar, and put into strong bottles, with the corks well fastened by twine and wire. The sugar accelerates a second fermentation, which always takes place about this time, and thus a strong movement is produced inside the glass, which generates gas enough to burst the vessels briskly, adding thereby considerably to the cost. This is called the gaseous fermentation, and it renders the drink more exhilarating, more prickling on the tongue, and more fruity. This last effect results from this, that the flavor of the fruit

mostly passes off with the carbonic acid gas which is largely generated in the first or vinous fermentation, and in a less degree in this second or gaseous fermentation. The loss of flavor from the first fermentation cannot be avoided, but by means of strong bottles and well-tied corks, it can be saved in the second. At the end of about a year, the liquid has become clear, and a sediment has been deposited. To get rid of this sediment, the bottles are placed in racks made to fit their necks and shoulders, inclining with corks downward, and well shaken daily for several weeks, which process works the sediment down against the cork. The wires and twine are then cut, and the gas exploding, blows it off. Then more sugar, for sweetness, is added, a new cork is driven in and fastened, and in a few weeks the article is ready for consumption." Among the many other distinguished cultivators of the Catawba in Cincinnati, must be mentioned Mr. Robert Buchanan, who has written a valuable book on the grape culture. The cost of a vineyard in the Ohio valley is estimated at \$200 to \$500 per acre. One man can attend to 5 acres, and with the assistance of his wife and children several more acres can be added, beside raising the necessary food for the support of the family. The average yield in Ohio is 500 gallons of wine per acre in ordinary years, and from 600 to 900 gallons in fruitful years, such as 1848 and 1858.

OATBIRD (*mimus felix*, Vieillot), a bird of the thrush family, peculiar to North America. It receives this name from its well-known note, which resembles the mew of a half-grown cat; this is not, however, its only note; its morning and evening song of wild warbling melody is worthy of the musical family to which it belongs. The catbird is found from Maine to Florida, making its appearance from the south toward the last of February, reaching the middle states about the 2d week in April, and New England about May 1; it is one of the few species which follow the course of agriculture, being rarely found far from the habitations of the farmer. Its general form is more slender and graceful than that of the American robin. Its plumage is soft and blended; the tail long and rounded at the tip; the bill is black, slightly arched; the general color of the upper plumage is blackish gray or slate color, the head, tail, and inner webs of the quills being of a brownish black; the cheeks and general under plumage of a deep bluish gray, paler on the abdomen, the under tail coverts being brownish red; the outer tail feather is transversely striped with white on its inner web; the plumage of the female is of a somewhat paler tint. Length 9 inches, extent of wings 12 inches, length of tarsus 1½ inches. The nest is large, generally made in bramble thickets, and constructed of twigs and briars mixed with leaves, weeds, and grass, lined with dark fibrous roots arranged in a circular manner. The eggs are from 4 to 6 in number, of a greenish blue color, without spots. Its

food consists of berries of the sweet-gum, poke, and sumach, insects, and fruits and berries of all kinds. It migrates during the night. It is very lively in its manners, and will follow with impudence for a considerable distance any intruder on its locality, mewing as it sits on a twig, jerking its tail from side to side. It is very irritable, and hates especially cats and snakes. Its attachment to its young is very remarkable, and it will often feed and raise the young of other species. Beside its own agreeable song, it possesses considerable imitative power, mocking the notes of other birds in an imperfect manner; according to Latham, it will, when in a domesticated state, imitate strains of instrumental music. Though this bird is generally persecuted, it deserves the kindest treatment for its services to the agriculturist in devouring wasps, grubs, worms, and insects, which would have destroyed ten-fold more growing fruit than it ventures to claim at the season of maturity. Its flesh is good, but is rarely used as an article of food.

CATCH, a species of vocal composition of 8 or more parts, written in the same clef, the performance of which produces a very whimsical and humorous effect. The 2d voice commences the 1st part when the 1st voice has commenced the 2d part, and the 3d voice commences the 1st part when the 2d voice has reached the 2d part, and the first voice the 3d part. The 1st voice then begins the 1st part again, while the 2d voice takes the 3d part, and the 3d voice the 2d part, and so on indefinitely. The catch is of English origin, and catch clubs, for the purpose of singing catches and glees, were formerly common in England; one of which, of some celebrity, used to meet at the Thatched House tavern, in London, so far back as 1762.

CATEAU, LE, or CATEAU CAMBRÉSIS, a French town, department of Nord, on the river Sella, 15 m. from Cambrai; pop. 8,283. It is well built, has salt works, manufactories of merinoes, shawls, calicoes, soap, and tobacco, and is noted for producing a superior quality of linen thread. Two treaties were signed there on April 2, 1559, between England and the Netherlands on the one side, and France and Scotland on the other, and on the following day between France and Spain. Wellington made his headquarters there in 1815, and Marshal Mortier was born there.

CATECHISM (Gr. *κατηχησμι*, to sound back), in a general and modern sense, an elementary textbook of any science or art. More commonly, however, it means a text-book for the instruction of the catechumens and children of a parish or congregation in the doctrines of the church, or the moral precepts of Christianity. The original form of this instruction was oral, by question and answer. The practice was to gather those who needed instruction into some suitable place, and there persons qualified either held disputations, or delivered dogmatic lectures, and then questioned the hearers upon

what had been said. It is probable that the early catechists followed no set forms, but endeavored, by catechizing their hearers, to awaken a train of thought, and then followed it whithersoever it might lead. But when the doctrinal theology of the church became more strictly defined, catechetical instruction became more dogmatic. These compends have of course varied with the variations of theological opinion in different ages or communions. The council of Trent in 1545 drew up a form of doctrine, which has been pretty closely followed since in the catechisms of the Roman Catholic church. Since that time, although the forms of the diocesan catechisms vary, there is a unanimity in their doctrine not found in Protestant churches. The principal catechisms of the Christian churches are the catechism of the council of Trent, which is a large and elaborate exposition, intended rather as a theological thesaurus for the clergy than as a system of popular instruction; the catechism of Luther (1529); of Calvin (1586); the Heidelberg catechism (1568), on the basis of which the Zurich catechism was drawn up (1639) for the Reformed church of Germany; the catechism of the Jesuits, drawn up by Father Canisius (1564); that of the Socinians, published at Racow (1574 and 1608); that of the English church, the work probably of Cranmer (1549), with the exception of that part which relates to the sacraments, which was added by Bishop Overall in the 1st year of James I., after the conference of Hampton court; that of the Westminster assembly, longer and shorter (1649), which serves as a basis for the Calvinistic and Presbyterian churches, both of Great Britain and the United States; and finally, the catechism of Bossuet, which is in general use in the Roman Catholic church of France. There are many mediæval writings and documents bearing the name of catechisms which have recently been much studied, and which if collected together would form a work similar to the collections already made of old liturgies and hymns. The private or individual catechisms of German theologians are numerous, and many of them voluminous, departing from the primitive idea of the Christian catechism, as an instrument for popular and elementary instruction.

CATECHU, an extract of the inner wood of the *acacia catechu*, a small tree which grows abundantly in the East Indies. The drug had long been in use before its origin was discovered, and had been called *terra Japonica*, as it was erroneously supposed to be derived from Japan. It is prepared by cutting off the exterior wood, and boiling the dark-colored chips of the interior of the trunk in water. The solution is then evaporated to the consistence of sirup, when it is dried in the sun in the form of flat cakes, or moulded by pouring it into earthen vessels. There are 2 species of the catechu, one nearly black, the other red, both said to be the product of the same tree. There are other varieties, some of which prob-

ably never reach this country. That common in our markets is the preparation above described, and is imported from Calcutta. Catechu has no smell, but is bitter to the taste. It contains a large proportion of tannin, which is soluble in alcohol. It is employed in India for tanning hides, and also as a dye for cotton goods, and in Europe, in the calico print works. In medicine it is used as a tonic and astringent.

CATECHUMEN, a term applied originally to a person, adult or otherwise, who was under a preparatory course of instruction previous to admission to baptism. Catechumens had a particular place assigned them in the church, and were allowed to be present only during a part of the service; from the other part they were warned to retire, a deacon crying out, "Withdraw in peace, ye catechumens." Of catechumens, there were several degrees in the church. The private catechumens might only be privately instructed; the *audientes* might hear sermons; the *orantes* might take part in the prayers; the *competentes* were those who were ready to be baptized, and stood at the threshold of communion. In later times, the term catechumens came to be applied to the children who were learning the catechism, as preparatory to confirmation.

CATEGORY (Gr. *kategoría*), originally, a charge or complaint made against any one, and hence it came to denote any thing that can be truly affirmed of a person or a thing; thus if we say A is B, B is a category of A, and A is in the category of B. The terms that may thus be predicated or affirmed may be classified in various ways and for various purposes; and the classes or genera into which they are divided are called categories. Of these Aristotle, the first writer that attempted a classification of them, made 10, namely: 1, substance or essence; 2, quantity; 3, quality; 4, relation; 5, place; 6, time; 7, position; 8, possession; 9, action; 10, passion. Thus if we are speaking of a man, we may give his substance or essence, a *man*; quantity; *one*; quality, *good*; relation, *friend*; place, *at home*; time, *yesterday*; position, *sitting down*; possession, *having a book*; action, *reading*; passion, *being tormented with the noise of children*. It is evident that in each of these cases the words in italics may be varied almost endlessly in the same category. Instead of man, the subject may be any thing else within the range of thought, and instead of 1 in the category of quantity there may be any number whatever; and the terms which are in the same category, as 1, 2, 5, &c., &c., are said to differ only in degree and not in kind. Thus all those in the category of quantity must denote some particular number, and those in the category of time must denote some particular time. It is evident from the passage in which this enumeration of the categories is given ("Topics," book i., chap. ix.), that Aristotle had in mind chiefly if not exclusively objects of sight or sense-perception, and classifies the predicates that might be affirmed

of them. The passage is as follows: "We must next define the genera of the categories in which the above named four [that is, definition, genus, property, and accident] are inherent. Now these are 10 in number: substance, quantity, quality, relation, where, when, position, possession, action, passion; for accident and genus, and property and definition, will always be in one of these categories, since all propositions through these signify either what a thing is, its quality or quantity, or some other category. Moreover, it is evident from these that he who signifies what a thing is, at one time signifies substance, at another quality, and at another some other category. For when man is proposed, and one says that the thing proposed is man, or animal, he says what it is, and signifies substance; but when white color is proposed, and one says that the thing proposed is white color, he says what it is, and signifies quality. So, also, if when the magnitude of one cubit is proposed, one says that what is proposed is a cubit in size, he will say what it is, and will signify quantity; and so of the rest. For each of these, whether it be predicated of itself [that is, if the definition of a thing be predicated of the thing], or if genus be predicated of it [that is, if its genus be affirmed of it as a predicate], signifies what the thing is." From this it would seem that in the estimation of the Stagirite all subjects as well as predicates could be referred to these 10 categories; and thus there would be given to the term category a still wider comprehension than we have contemplated, and we should say that whatever we may speak of at all must be either substance, quantity, quality, relation, place, time, position, possession, action, or passion; and in this view the word category has passed from signifying, as it did at first, literally, only what can be affirmed of a subject, and to denote an exhaustive classification of the subjects themselves. But in either sense of the word the classification is incomplete and inadequate. It has never been found of much use, though the term has been of great service as a means of discussion, and the want of some satisfactory classification has been constantly pressing upon thinkers and writers in this department. Considered as including predicates only (since for them it was at first designed), the classification is incomplete. It includes but very little of what would need to be said of a triangle, or any other mathematical figure, for example; still less, perhaps, of what should be said of a mere phenomenon of intellectual activity, a fact of consciousness, and still less of the attributes of mind or any other immaterial agent. And in reference to physical objects themselves, it would be difficult to say to which of the categories, if to any of them, our predicate would belong when speaking of the cause of any object or phenomenon. Or again, if we were wishing to speak of the results of a chemical analysis, it would be difficult if not impossible to find any one of these categories within which to express our thoughts.—

Sensible of these difficulties, Kant proposed a new classification of the categories. He seems to have thought that the result could be much more effectually accomplished if we take for our starting point, not predicates as Aristotle had done, but the fundamental laws and conditions under which cognition takes place; since it is obvious that only those properties, relations, &c., of any object by means of which we have cognized it, can be affirmed of it in any act of the judgment. These categories (of the understanding, as Kant would regard them) he divided into 4 species with 8 varieties in each, thus making 32 categories in all. Kant thought that the fundamental ground of Aristotle's error lay in his method, the *à posteriori*, and that if we would succeed we must deduce the categories from the *à priori* forms of thought. These he thought could best be found in the act of judgment, and from them he would derive the conditions of cognition. Now of judgments there are 4 species with 8 varieties in each, namely:

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|----------------|------------------|-------------------|--------------------|
| 1. Quantity.   | 2. Quality.      | 3. Relation.      | 4. Modality.       |
| (1) Singular.  | (1) Affirmative. | (1) Categorical.  | (1) Problematical. |
| (2) Plural.    | (2) Negative.    | (2) Hypothetical. | (2) Assertive.     |
| (3) Universal. | (3) Indefinite.  | (3) Disjunctive.  | (3) Necessary.     |

Hence, in the opinion of Kant, there must be a corresponding condition of cognition for each of these varieties of judgments, and consequently a category or class of predicates for each: 1, quantity, as (1) one, (2) some, (3) all; 2, quality, as (1) real, (2) unreal, (3) partly both, that is, limited, or real within certain limits; 3, relation, as (1) substance and property or inherence, (2) cause and effect or dependence, or (3) reciprocal action (*Wechselwirkung*); and 4, modality, (1) possible or impossible, (2) being and non-being, and (3) necessity and accidentence. Victor Cousin has complained of this classification as unsatisfactory; and, in fact, it does not seem to have answered any such purpose as its author evidently expected of it. Cousin thinks that the primary classes of categories, as derived *à priori* according to Kant's notion, are but two, the one called variously and under the alternate conceptions of substance, cause, infinite, absolute, &c., and the other under the correlative terms property or phenomenon, effect, finite, relation or condition, &c. But this classification seems to have lost sight of the primary object which Aristotle had in view, and which was still a controlling motive with Kant, namely, some classification of predicates or the purpose of facilitating the processes of investigation, discussion, and reasoning. Dr. Wilson, in his "Logic" (part ii. chap. 4), has divided all predicates into 5 classes or categories, namely: 1, *essentia*; 2, *differentia*; 3, accidents; 4, quantity; and 5, cause or effect. In the 1st he includes all the properties of the proximate genus, and so of all the higher genera, which gives the essence of a thing; in the 2d, the *differentia* of the species, which gives its

limitations and distinctive characteristics; in the 3d, whatever may be accidental to it, and so different at different times without changing its identity, and which, therefore, cannot enter into science properly so called; in the 4th, the quantity, whether discrete, as the number, as 1, 2, &c., or continuous quantity, as finite, large, small, infinite, &c.; and finally, the relations of an object in time, as fixed by its antecedents and consequents, causes and effects. Of course there are some of these categories into which some objects will never fall, as, for example, a mathematical figure cannot fall into the 3d or 5th, as no matter that is truly accidental to it enters into the discussion of such a figure; nor do we speak of it in relation to its cause or its effects, since it is not considered as an objective reality at all.—Still another classification of categories of great practical value may be given, based upon the quality of the term by which the subject is denoted. Thus, if the subject be a negative term, we can affirm of it only negative predicates; if a privative, we can affirm only the *essentia* of the proximate genus, with a denial of some of the properties of its species. Among positive terms we have 1st the abstract and the concrete. The abstract are either (1) general, denoting a genus, or (2) individual, denoting the abstract conception of a single property, as whiteness. Of neither of these can we predicate any terms implying their concrete existence, their quantity or extent, their divisibility, cause or effect, &c., since all these things can belong only to concrete and therefore substantial realities. Concrete terms may be either (1) individual or (2) collective. Thus, congress, which is a collective term, is as really a concrete reality as any one of the men who are members of that whole. And yet it holds of all collective wholes that some things may be predicated of them which cannot be predicated of any individual member or part taken individually, nor yet of them all taken generally or as a genus; and so, conversely, predicates may be affirmable of each member taken separately which cannot be affirmed of them taken collectively: e. g., each member of congress is a man, and may be a Christian; congress is neither a man nor a Christian. Then, finally, the subject may denote (1) merely a subjective reality, or a conception which exists only in the mind, as when we speak of a triangle, a circle, &c.; or (2) it may denote an objective reality which exists out of the mind, and as such is cognized by the mind itself. In this case our classification would be based, like that of Kant's, not upon an *à posteriori* classification of the predicates as actually observed in use (for no such classification is or even can be complete and satisfactory), but upon the *à priori* conditions of cognition as indicated by the processes of cognition and the formation of conceptions and the terms to represent them. And it is obvious that if this classification should be followed out it would determine for us *à priori* what may be affirmed of any given subject, and

so give assurance of completeness in the results of our investigations, and of certainty in our reasonings and discussions.

CATEL, CHARLES SIMON, a French musician, born June, 1778, died in Paris, Nov. 29, 1830. He was one of the first professors appointed to the conservatory of music in Paris, and is the author of a number of musical works, of which his *Traité d'harmonie* is the best.

CATEL, FRANZ, a German artist, born in Berlin, Feb. 22, 1778, died in Rome, Dec. 19, 1856. His earliest efforts were designs for illustrated almanacs. He then painted in oil and water colors, and took up his abode in Rome in 1812. Overbeck, Schadow, and Cornelius gave him much encouragement, and he painted historical and *genre* pieces, and landscapes. During a residence in Sicily, about the year 1818, he painted a large number of views of Mount Etna, and other prominent places on the island. He died rich, directing his fortune to be invested for the benefit of poor artists.

CATENARY, the curve formed by a chain hanging from two points, not in the same vertical line.

CATERPILLAR, the common name of the larvæ of lepidopterous insects, including butterflies and moths. Caterpillars vary greatly in form and appearance, as may be judged from the fact that about 600 species are known in New England alone, and probably many are yet unknown. The body is composed of 18 segments; the 1st constitutes the head, containing the jaws and oral appendages; the 2d, 3d, and 4th form the thorax of the future insect, and the remaining ones make up the abdomen. The head is rounded, and of a harder consistence than the body; on each side are 6 very small *ocelli*, or simple eyes, with a very convex cornea and a spherical crystalline lens, 2 short antennæ, and a mouth, with strong jaws moving transversely; the mandibles are hard, for breaking up the food, while the maxillæ are soft and adapted rather for holding it; in the middle of the lower lip is a conical tube, through which issue the silken threads from which their nests and cocoons are made, and their suspensory fibres; a viscid fluid, enclosed in 2 long and slender bags, is poured out through the "spinneret" in a fine stream, and hardens into silk on contact with the air. The segments of the body are very nearly equally developed; the 2d, 3d, and 4th have each a pair of tapering, jointed legs, covered with a shelly skin and ending with a little claw; these are the rudiments or cases of the future limbs, and are the true organs of locomotion; some of the other segments are furnished with soft, jointless, fleshy, and contractile legs, called prop legs, which disappear with the larval condition, being only prolongations of the external covering and shed with it, like the nails and claws of the higher animals; the abdominal legs vary in number from 4 to 10, and are provided, around the margin of the sole, with rows of minute hooks capable of such direction as is necessary

for a secure hold. The body is sometimes smooth, at others hairy, and even spiny; these external appendages, whether for ornament or defence, are shed with the skin before the pupa state. Where the middle portion of the body is unprovided with feet, the caterpillar adopts the arched or looped manner of walking, so familiarly known in the common canker worm; these species are hence called spanners, loopers, surveyors, and geometers; some, when in a state of repose, fix themselves by the hind legs only, and project in a rigid condition from branches, which they then much resemble in direction, form, and color; the power of remaining thus immovable for hours at a time must be due to a muscular force of which we have no idea in vertebrated animals; the species which have 8 to 10 intermediate feet walk by short steps, in a continuous worm-like manner. Some smooth caterpillars, as those of the sphinx moth (commonly called potato worm), have a spine or thorn upon the top of the last segment of the body, directed backward and curved; though this looks like and has been considered an offensive or defensive weapon, its softness is such that it could inflict no wound. The larvæ of some of the hymenopterous insects, as of the saw flies (*tenithredinidae*), resemble caterpillars both in form and habits; but these false caterpillars may be distinguished by their greater number of legs (18 to 22), and by the absence of the numerous hooks in their prop legs; the larvæ of other insects, having the same number of segments, are scaly and not soft and membranous. On each side of the body are 9 oval apertures, spiracles, or *stigmata*, situated in the 2d, 5th, and following segments to the 12th, provided with valves; these communicate directly with the internal respiratory organs, which are in the caterpillar branching tubes; in the perfect insect, the tracheæ are dilated into an immense number of vesicles permeating every part of the body. The intestine is short and straight. The nervous system is a series of ganglia connected by cords, one for each segment, in the perfect insect the greater part of it being concentrated in the head and thorax. Caterpillars vary greatly in size; the mean may be taken at an inch, those much exceeding this being large, while those much below it may be considered small; those which have only 8 feet in all are the smallest, and are generally the moths' caterpillars. The size of a caterpillar compared to that of the egg is very great, and the rapidity of its growth is truly astonishing; there is no large animal at all comparable to it for voracity, for some species will eat in 24 hours more than double their own weight; though less voracious than locusts, they are quite as destructive from their greater fecundity and their wider distribution over the vegetable world. According to Count Dandolo, the common silkworm, during the 30 days in which it attains its full size, increases in length from 1 to 40 lines and in weight from  $\frac{1}{175}$  to about 95 grains; during this period, therefore, it has

increased 9,500 times in weight, and has eaten 50,000 times its weight of food. The caterpillar of the privet hawk moth on leaving the egg weighs about  $\frac{1}{16}$  of a grain, and at the end of 32 days, when it has acquired its maximum size it has been known to weigh 142 grains, and to measure over 4 inches in length, thus increasing more than 11,800 times its original weight. According to Lyonnet the larva of one of the carpenter moths (*cosmus ligniperda*, Fabr., or genus *xylenes* of Newman), during the 3 years in which it is supposed to remain in the caterpillar state, increases 72,000 times its first weight by a great accumulation of fat for its nutriment in the pupa and perfect states. Most caterpillars feed on vegetable substances, the leaves, flowers, roots, buds, seeds, and even the wood of plants; many domestic pests gnaw woollens and furs, leather, and fatty substances; while some are quite exclusive in their diet, others are more indiscriminate feeders. When they are very numerous, scarcely any plant escapes their attacks, and at such times their ravages are deplorable, reducing trees in midsummer to their winter leafless livery. Plants with acrid juices are the favorite food of some species, and the nettle and other spiny shrubs are the natural habitats of many smooth and tender-skinned varieties. Most feed on the exterior of plants, but some of the most destructive and most delicate live in the interior of branches and stems. The sweetest fruits, as pears, plums, and apples, ripen and fall prematurely, the abodes of caterpillars; plums are especially liable to be thus inhabited, while the peach and apricot are free from all larvæ; it has been observed that a single fruit rarely contains more than a single caterpillar, the second inhabitant, if there be one, being the larva of some other order of insects. Wheat, rye, barley, and other grains are infested by small caterpillars, which gnaw away the whole interior without any external perceptible trace, so that an apparently sound heap may be only a collection of useless skins; a single grain contains just the quantity of provision necessary for the transformation of the insect. Another example of the instinct of the lepidoptera is seen in the fact of their depositing their eggs on the parts of the plant which will furnish an easily accessible supply of food to the caterpillar when it is hatched; their eggs are found glued to fruits, and to flowers that are to produce fruits, between the very petals, so that the young find themselves surrounded by an immediate supply. Caterpillars are remarkable for the eagerness with which some species will feed upon their fellows, in preference to vegetable substances in profusion around them. Different species select different times of day for feeding; some eat at all hours, some in the morning and evening, and others only at night; a knowledge of these habits is of great advantage for the easy destruction of many pests of the vegetable garden. Though generally disgusting objects, the contrast and brilliancy of the colors in some of them are em-

inently beautiful. Some species hard together in great numbers, constructing their silken habitations in common; others live solitary, exposed to light and air, or protected in rolled leaves or silken sheaths; others burrow in the ground, or conceal themselves in the stems of plants and the pulpy substance of leaves. The caterpillars which live in one nest all come from the eggs of a single insect, and are generally hatched on the same day; from 200 to 700 may thus be found together, and may remain so through the chrysalis condition, or may separate at different periods of life; some, though living in great numbers on the same tree, are solitary with respect to each other, performing no work in common; the most solitary are the leaf-rollers, which are also the most remarkable for their vivacity. For the mechanism of the various abodes of caterpillars the reader is referred to the works of Réaumur, Latreille, Kirby and Spence, and other practical entomologists. The attitudes assumed by caterpillars when attempts are made to catch them are characteristic of species in many cases; some roll themselves into a ring and remain as if dead, the hairy ones resembling little hedgehogs; others fall instantly to the ground and try to escape by rapid flight; some attempt to defend themselves by various motions of their bodies. The mode of marching adopted by the "processionary caterpillars" is very remarkable; these live in society, and when they quit their nest they go in a regular procession, a single caterpillar first and the others in single file, or 2, 3, and 4 abreast; the line is so perfect in the columns, that the head of one is never beyond that of another in the row; following their leader, stopping when he stops, they make journeys from tree to tree in search of food, returning to their nest in the same order; they form their ranks, march, and halt, with the precision of soldiers; when several nests are in the same wood, the spectacle of these creeping battalions, issuing forth and returning at the same hour, is exceedingly interesting; the processions generally take place toward night. \* Another species, common in pine forests and living together, walks in procession in single file, often very long, the head of each in contact with the tail of the one in advance; they defile in a straight line, or in a variety of graceful curves; they sometimes go to great distances from the nest, always with the same slow and grave step, following exactly their leader; they return to the nest by the same path, which they find not by the sense of sight but of touch; the path of exit is covered as they go by a silken tapestry, and they return upon the same delicate carpet, however tortuous may have been their way. In the article BUTTERFLY, it was mentioned that caterpillars change their skins several times before attaining their perfect state, spinning for themselves a sort of cocoon of silk, interwoven with hairs of their own, with bits of leaves, and even with particles of earth, suspending themselves by silken threads, or burying themselves in the ground; the reader

is referred to that article, p. 157. Those lepidoptera which pass the winter in the egg, live in the caterpillar form during a part of the summer; the eggs are protected against cold by the shell and by the sheltered or subterranean situations in which they are placed; others pass the winter as caterpillars, concealing themselves under stones and the bark of trees, or descending deep into the ground where the cold cannot reach them; the social varieties retire to their warm and water-proof nests; these come forth in the spring quite well grown, but most pass the winter in the form of chrysalis, in protected or in open situations; a few pass this season as perfect insects. The natural enemies of caterpillars are numerous; almost all insectivorous birds and poultry devour them eagerly; other insects not unfrequently feed upon them; and little maggots developed in their bodies from the eggs of the *ichneumonidae* cause thousands to perish prematurely. In the northern states there are about 1,000 different kinds of butterflies and moths; as each female lays from 200 to 500 eggs, these species, from a single female each, would on an average produce in a year 800,000 caterpillars; if one-half of these were females, the second generation would be 45 millions, and the third 6,750 millions; with such fecundity it may well be imagined that the destructive powers of caterpillars must be very great. The work of Dr. Harris on "The Insects Injurious to Vegetation," under the head of "Lepidoptera," gives an extended and valuable account of the ravages of caterpillars in America, particularly in New England; to this are referred those specially interested in the subject. Alluding to laws in France and Belgium which require the people to "uncaterpillar" their gardens and orchards, under the penalty of a fine, he thinks similar regulations might be enacted here with advantage, or at least that the states might offer a respectable bounty for caterpillars by the quart, thus affording remunerative and highly useful employment to children and otherwise idle persons. Many destructive caterpillars will be alluded to under the articles HAWK MOth and MOth, and under the popular names of the most noted species.

CATESBY, MARK, an English artist and naturalist, born in 1679, died in London toward 1750. Having first studied the natural sciences at London, he afterward repaired to Virginia, and remained in America 7 years, returning to England in 1719 with a rich collection of plants. Encouraged to revisit America, he arrived in South Carolina in 1722, explored the lower parts of that state, and afterward lived for some time among the Indians about Fort Moore, 800 miles up Savannah river; after which he continued his researches through Georgia and Florida. After spending 3 years upon the continent, he visited the Bahama Islands, constantly occupied in delineating and collecting botanical and zoological objects. He returned to England in 1726, and issued in 1780 the 1st volume of his great work on the "Natural History of Caro-

lina, Florida, and the Bahama Islands." The figures were etched by himself from his own paintings, and the colored copies were executed under his own inspection. In this work, which has been twice republished, were found the first descriptions of several plants which are now cultivated in all European gardens. Catesby was a member of the royal society, and the author of a paper on the "Birds of Passage" in the "Philosophical Transactions." His name has been perpetuated by Gronovius, in the plant called *Catesbaea*.

CATFISH, one of the *malacoptygii* or soft-rayed fishes, of the family *siluridae*, and of the genus *pimelodus* of Olivier; characterized by a smooth palate, the palatic bones often bearing teeth, but with no band of teeth parallel to those of the upper jaw; the head ornamented with 8 fleshy barbules; skin naked. Dr. Storer describes 16 species as occurring in the fresh-water streams and lakes of North America, and there are about 50 in various parts of the world.—The common catfish, or horned pout (*P. catus*, Linn.) is one of the most common fishes of our rivers, and is by many preferred as an article of food to all other fishable species except the pickerel; specimens are occasionally met with weighing  $\frac{1}{2}$  of a pound. Length 7 to 9 inches; color dusky, almost black on the head and back, lighter on the sides, and white beneath, in front of the ventral fins, which are behind the pectorals. Upper jaw longer; tail nearly even and rounded; head smooth and flattened; skin naked and covered with a mucous secretion. It has 2 fleshy barbules on the top of the head between the snout and eye; at the angle of the upper jaw are 2 thick fleshy barbules, reaching to the middle of the pectoral fins; and there are 4 others under the lower jaw. The mouth is capacious. There are 2 blunt spines midway between the eye and the opening of the gills; the 1st ray of the 1st dorsal fin is strongly spinous; the 2d dorsal is fatty; the pectoral fins have also a serrated spine; these spines become fixed and immovable at the will of the animal, and serve as formidable defensive weapons. Varieties sometimes occur in this genus without ventral fins, and such have been described as a new genus, *pimnoterus*. This species is the most common one in the New England and middle states, and is found in the great lakes and along the Atlantic states from Maine to Florida. It prefers muddy bottoms, as do all the species of the genus.—The great lake catfish (*pimelodus nigricans*, Lesueur) is from 2 to 4 feet long, weighing from 6 to 80 pounds; it is found in Lakes Erie and Ontario. This is of a deep olive brown color, and has the tail forked. Other species are the Huron catfish (*P. cornutus*, Rich.), 10 inches long, found in Lake Huron; northern catfish (*P. borealis*, Rich.), 80 inches long, found in the northern regions; the white catfish (*P. albidus*, Lesueur), of a whitish ash color, 12 to 15 inches long, from Dela-

ware; the mudfish (*P. punctulatus*, Ouv.), 2 to 3 feet long, of a brown color spotted with black, from Louisiana. Among the large species found in the Ohio river and its tributaries are the *P. anerus* (Lea.), 2 to 3 feet long; *P. furcatus* (Lea.), 1 to 4 feet long; *P. cupreus* (Raf.), 1 to 4 feet long; *P. limosus*, *P. carolinensis*, and *P. canthocephalus*.—The catfish are sluggish in their movements, securing their prey rather by stratagem than by swiftness. The female moves about with her young, like a hen with her brood. Though their flesh is generally esteemed in the country and on the western rivers, it is very insipid to persons accustomed to salt-water fishes. Catfish is a name applied to other species of different genera, and among others to the ferocious *anarrhicas lupus* (Linn.), more properly called wolf-fish.

CATGUT, the intestines of sheep and other animals, dried and twisted, used for strings of musical and other instruments. How this name came to be applied to the strings it designates no one can explain. Shakespeare in an old copy of "Cymbeline" alluded to "horse hairs and calves' guts," which in later editions is changed to cats' guts. In Bacon's "Natural History" mention is made of "strings of guts" for a viol; but no early allusion to the intestines of the cat being used for this purpose is anywhere met with. The dulcet strains that are emitted by the organs of this animal all cease with its life, and the viscera of the quiet sheep are almost exclusively selected to draw forth from the harp, guitar, and viol those heavenly sounds which harmonize so little with the nature of the material which produces them. The process of preparing these cords is an art which has received the attention of many scientific men, and is described in detail in many works upon arts and manufactures, as by Dr. Ure and Mr. Tomlinson in their dictionaries, and with great minuteness in Laboulaye's *Dictionnaire des arts et manufactures*, in which, under the head *Boyauderie*, is given a voluminous memoir upon the subject by M. Labarraque. This essay obtained for him the prize of the *Société d'encouragement*, and demonstrated that by the use of his disinfecting liquid, hypochlorite of soda, the nauseating putrefaction of the materials and the results of this might be avoided. In the establishments where the trade of manufacturing these cords is conducted, men and women are alike engaged in the various processes, which, from the description given, appear to be the most disgusting in which human beings are employed. M. Labarraque states that no one can express the disgust experienced on first entering one of these workshops; and yet, he says, to show the influence of habit upon man, there is no lack of workmen, nor are they more frequently sick than those engaged in other employments. The nauseating odor in which they live never leaves them, even after their Sunday cleaning; one instantly recognizes it after one visit to the

place of their labor. The membranes are subjected to numerous different processes, lasting several days, to thoroughly clean them. They are exposed to fumes of burning sulphur to purify them, and are slit and twisted into different sized cords according as they are designed for musical strings, whip cords, hatters' cords, or clockmakers' cords. They are then dyed, and afterwards, as they are stretched upon frames, dried and hardened by exposure to a temperature of 180° to 200°. Lastly, they are cut off and coiled up for sale. The English fail to make good musical strings. Theirs have not the strength of the Italian strings, and the smaller ones are frequently fractured before they can be brought to the proper pitch. The cause of this is supposed to be the fatness of the English sheep, the intestines of lean animals being much stronger; in this respect the Italian sheep have a decided advantage. Otto, in his "Treatise on the Violin," says that the best strings are those from Milan, sold by the name of Roman strings, and as these are imitated by inferior cords made in Bohemia and the Tyrol, he gives the following as the marks of the best article: "The Milanese strings are as clear and transparent as glass. The third string should be equally clean as the first. They must by no means feel smooth to the touch, for they are not ground or polished off by any process, as all other manufactured strings are. If a good string be held by one end in the finger and opened out, it will recoil to its former position like a watch spring. Every string when stretched on the instrument should look like a thin strip of glass on the finger-board; those which are of a dull and opaque appearance are useless. Their elasticity is after all the best criterion, as no other strings which I have tried have that strength and elasticity for which the Milanese are so much esteemed."

CATHARINE I., empress of Russia, born at Germunared in Sweden in 1682, died in St. Petersburg, May 17, 1727. Her father was a Swedish quartermaster, John Rabe; her mother, Elizabeth Moritz; her own original name, Martha. After the death of her husband, Elizabeth Rabe returned to Livonia, where she had married him, and where she soon died, leaving several children of her first husband (afterward made counts by Peter the Great), and Martha, then a child of 8 years. A sexton of the place took care of the destitute orphan, from whose house she was then taken to that of the provost Glück, at Marienburg, who educated her with his children. In 1701 she married a Swedish dragoon of the garrison of Marienburg, but the campaign of 1702, in which he had to serve, and the capture of Marienburg (Aug. 28) by the Russians, under Sheremetieff, separated them forever. Martha, together with the family of her protector, Glück, was made captive by the Russian general, who treated the old clergyman kindly, but retained the females. At the distribution of the spoils, she was allotted to Gen. Bauer, whose mistress



she was until she was ceded by him to the princess Mentchikoff, who employed her in household services. It was there that Peter the Great saw her, was captivated by her beauty, and made her his mistress (1708). She adopted the Greek creed, and with it the name of Catharine Alexievna. In 1708 she bore Catharine; in 1708 Anna, afterward duchess of Holstein-Gottorp, and mother of Peter III.; in 1709 Elizabeth, afterward the empress of Russia. She maintained her influence over Peter by the vivacity of her spirit, her unwearied activity, and her good temper. She shared the troubles and fatigues of his campaigns, and frequently calmed the wild outbreaks of his savage temper. When in 1711 his great rival, Charles XII., who, after the defeat of Pultowa (1709), had found refuge and protection in Turkey, had succeeded in arming that state against the Russians, and Peter, after an imprudent march, found himself reduced to the extremity of starving on the banks of the Pruth, or surrendering his army, Catharine, with the assistance of Ostermann and Shaffroff, saved the desponding emperor and his new created state by bribing, at the sacrifice of her jewels, the Turkish grand vizier. Peter proved his gratitude by marrying her secretly, by acknowledging her as his wife in 1712, and declaring her empress in 1718. As such she was crowned in Moscow in 1724. Of 5 children she bore after her marriage with Peter, most died in their early infancy. The determination of Peter to make her his successor was shaken by his suspicions about her conjugal virtue, and still more in 1724 by his conviction of her infidelity, in consequence of which the chamberlain Moens was beheaded (ostensibly for mismanagement in office), his sister ignominiously flogged, and his 2 sons sent to the army in Persia. It has been asserted that Catharine, having been shown by Peter the head of Moens, still hanging on the scaffold, said calmly: "What a pity that the people of the court are so corrupt." She succeeded, however, in strengthening her position by reinstating Mentchikoff in the favor of Peter, which he had previously lost by his devotion to her. But still so doubtful was her situation, that at the death of Peter (Jan. 28, 1725), which was kept secret until her succession was secured, she could not avoid the suspicion of having poisoned her husband. The archbishop of Pleskov, Theophanes, declared under oath to the people and the army that Peter on his deathbed designated her as the worthiest of succession, and the guards, the synod, and the high nobility, gave their consent, and the people their oath of fidelity to the first "empress" and autocrat of all the Russias. The policy of Peter was continued under the leading influence of Mentchikoff; but soon the caprices of the empress, who was beside guided by favorites, and subject to intemperance in drinking, were felt in the management of affairs, and blunders committed, while her ruined health prepared a sudden end. Her successor was Peter II. II. CATHARINE II., empress of Russia,

born at Stettin, May 2, 1729, died in St. Petersburg, Nov. 17, 1796, was the daughter of Christian August, then governor of Stettin, afterward reigning prince of Anhalt-Zerbst, and field-marshal-general of Prussia. Her mother was a princess of Holstein-Gottorp. Her parents gave her the names Sophia Augusta, and a careful education. At an early age she was chosen by the empress Elizabeth, according to a proposition of Frederic the Great, to become the wife of her nephew and successor, Peter III. Her mother brought her to the court of Russia, where she adopted the Greek creed, received the name of Catharine Alexievna, and was married Sept. 1745. But all the expectations she may have formed of a life of magnificence, influence, and delight as future empress of the greatest monarchy of the world, soon vanished under the indifference and repulsive treatment of her husband, who, though not incapable of good emotions, was rude, dissolute, and passionate. Her fiery and lively temper could not be contented with the consolation of continued studies, in the long retirement in which she lived during the life of Elizabeth, but sought satisfaction in amorous connections which were no secret to any one. Among the persons who surrounded Peter and herself, Soltkoff won her liveliest affection by his spirit and good looks, and lost it only when favor and envy had sent him as ambassador to foreign courts. At that time Catharine became mother of Paul, afterward her successor in the empire. Poniatowski, a handsome and highly accomplished Pole, won the place of Soltkoff as his first appearance at the court, and was protected in her favors by the empress Elizabeth, who caused Augustus III., king of Poland, to appoint him as his ambassador, but was soon persecuted by intrigues of representatives of other courts, who saw in his sympathies for England, and in his influence over Catharine and Peter, a danger for the French-Russian-Austrian alliance. He was recalled, and Gregory Orloff became the object of her favors. When in 1761 Peter succeeded Elizabeth, the ill feeling between him and Catharine became still more embittered, and the life of both, particularly the more grossly public amours of Peter, gave sufficient cause for hatred. Catharine spoke of her meditated repudiation in favor of Elizabeth Woronzoff, and the Orloffs and their friends were ready to save and revenge her. The hetman Razumoffski, Count Panin, and Princess Dashkoff, a bold and enterprising woman, became their chief assistants in the conspiracy against Peter, which was greatly promoted by the general antipathy created in the nation and army by the Prussian predilections and discipline, as well as by the character and policy of the unfortunate monarch, and was eagerly joined by malcontents, romantic adventurers, and ambitious courtiers. But the plot was nearly detected and one of the conspirators imprisoned, when they hastened its execution. In the night of July 8-9, 1762, Catharine came over from Peterhof to St. Petersburg, a part of the way on a peasant's wagon, and appeared before

the guards, who hailed her as empress, though, according to the original plan, her son Paul was to be declared emperor and herself regent; but this had been changed by the Orloffs, and the future senator Teploff read, instead of the prepared manifesto, a new one in the Kasan church. Peter was soon seized, and after a few days strangled in prison. To gain pardon the sooner for her part in the crime, Catharine made the most splendid promises to the nation, flattered its prejudices, exhibited great devotion to the national religion and its priests, was crowned with great pomp at Moscow, and made a show of extraordinary zeal for improvements in industry, commerce, and the navy, and for reforms in the administration of justice, as well as in the management of the external affairs of her vast empire. Courland was compelled to depose its duke, Charles of Saxe, and to submit again to the rule of Biron, who had made himself hateful by his cruelty. Her influence prevailed in Poland after the death of Augustus III. (1763), in the election of her favorite Poniatowski as king under the name of Stanislas Augustus, from whose affection and weakness she justly expected the extension of her influence over the neighboring state, distracted as it was by religious and civil dissensions. But this happy commencement could not allay the hatred of national malcontents; attempts against the empress were plotted at Moscow and Petersburg, with the aim of setting upon the throne of the czars, Ivan, son of Anna Carlovna, who had already atoned by 24 years of imprisonment under Elizabeth and Catharine, for having worn as a child, for a few months, the imperial title before the accession of the former. The violent death of Ivan, in his prison at Schlüsselburg (1764), put an end to these schemes, and Catharine could now enjoy more easily the pleasures and festivities of her court, troubled but little by its intrigues about favors and favorites. The convocation of representatives from all the provinces of the empire for discussing the reorganization of justice, at Moscow, was a new manifestation of her political activity, as were the rules elaborated by her, and read in the first session, of her political wisdom. But the rude Samoieds spoke of oppression by their governors, and a proposition for the enfranchisement of the serfs was soon made. Catharine was afraid of the consequences, and hastily dissolved the assembly, who declared her mother of the country. Greater were the results of her external diplomacy. Poland, undermined by her intrigues and her protection bestowed on the dissidents, soon became a prey to its neighbors. The confederation of Bar (1768), under Pulascki, Potocki, and other patriots, the weak opposition of France to Russia, and a declaration of war by the Turks, could not save the unhappy republic, and its first division by Russia, Austria, and Prussia, ensued in 1772, and Catharine received a proportionate share. The Turks were

humbled by her armies under Romanzoff, on the Pruth and on the Kagool (1770), by the conquests of Chocim and Bender, as well as by her fleet under Alexis Orloff, which won the great naval victory of Soio, and burned the Turkish fleet in the bay of Toheame; and the last disasters of the great vizier compelled the Porte to the peace of Kootchook-Kainarji (1774), and its cession of Kinbourn, Azof, Yenikale, Kertch, and both Kabardahs to Russia. Crimea was made independent, soon to become a prey to Russia. Having happily subdued and severely punished the revolt of the Cossack Poogatcheff, a pseudo-Peter, in the eastern provinces (1771-'74), she now formed the plan of expelling the Turks from Europe, and founding a new Byzantine empire under a prince of her house. This scheme, favorably regarded by some philosophers of France, was eagerly promoted by her new favorite, the ambitious Potemkin, who ruled her no less arrogantly than he did the empire. One of the gates of Moscow received this inscription, "Way to Constantinople;" one of her grandsons the name of Constantine; and plans were made on the banks of the Neva for the restoration of Sparta and Athens. After a journey through the eastern provinces which had been the scene of the revolt, she undertook a new one, in 1787, through the southern parts of her empire, to the lately conquered Taurida (in part the ancient Tauris). Potemkin made this a most magnificent triumph. The eyes of the empress were dazzled by enchantments; palaces rose on desert prairies, to shine for a day; villages and cities, of which only the walls were real, were seen from afar, covering the barren plains of the Tartar nomads; masts and flags rising above the sands showed fictitious canals; festivities and bonfires followed each other; and dances and song proved the happiness of a population of a hundred nationalities, which ran in the night to appear next day in new scenes of illusion. Catharine, who never forgot to listen to the applause of the French philosophers, amused herself and her court at the same time, with the translating of Marmontel's *Bélisaire*, but still pursued her diplomatic schemes. Poniatowski, who came to see her after 28 years, near the frontiers of his dismembered state, was repaid with kind promises for ancient personal affection and new political fidelity. Joseph II. of Austria, who came to Kherson, was won for a common war against Turkey, which ended for Austria with his death (1790), and without gain, and for Russia, after the conquest of Otechakov by Potemkin, after the great victories of Suwaroff, and his bloody conquests of Ismail and Bender, with the peace of Jassy (1792), and the acquisition of Otechakov and the country between the Bog and Dniester. This result, so slight in comparison with the expected overthrow of the Turkish empire, was owing in part to a war with Gustavus III., the gallant king of Sweden, who marched against St. Petersburg, but was happily checked in Finland by his officers refusing to advance, and was thus

compelled to make peace (1790); in part to the opposition of England and Prussia; but principally to the bravery and fanaticism of the Turks in defence of their country. The progress and victories of the French revolution, though giving her a kind of satisfaction by the humiliation of several states once mighty, filled Catharine with horror, and made her soon forget all her predilections for France, and her own vaunted liberalism; she assisted the *émigrés*, broke off every communication with the French government, and even made an alliance with England. Poland was in the mean time the chief object of her attention. Its Long diet had completed the new constitution of May 3, 1791, which promised to give union and vigor to the nation. Catharine, while at war with Turkey, had approved of it, like Frederic William of Prussia, who had his war with France. But scarcely were these wars finished, when Poland was treacherously attacked from both sides. A Russian army of 100,000 men was sent to support the aristocratic faction that had formed the confederation of Targovitz against the constitution. The nephew of the king, the future French marshal, Joseph Poniatowski, in vain led the Polish army against them; Kosciuszko proved in vain to be a worthy disciple of Washington. The king, persuaded by Catharine, deserted them, and went over to the confederation, and the second partition of Poland followed, executed by Russia and Prussia alone. The Russian cannons compelled the diet of Grodno to sanction it (1793). The great rising of the betrayed nation in the following year commenced with the massacre of the Russians, and with glorious victories, under Kosciuszko as dictator, but ended with his defeat at Maciejowice (Oct. 10), and with the taking of Praga (Nov. 4) by Suwaroff, who repeated there the slaughter of Ismail and Bender. "Bravo, field-marshal!" was Catharine's answer to his report: "Hurrah, Praga, Suwaroff." The three great neighbors of Poland now took the whole of it, and destroyed even its name (1795). A year before, Catharine had annexed Courland to Russia. She now undertook a war against Persia, when she died of apoplexy, after an agony of 30 hours, leaving her empire, so greatly enlarged, to her son Paul.—Catharine was possessed of great talents, susceptible of great ideas, and showed often a manly spirit and energy; her ambition appeared grand, but at the same time she was a woman in caprice, a slave of her sensuality and vanity, extremely selfish, and sometimes cruel. Her numerous favorites, some of them her tools, and some her masters, were elevated by their official situation in the palace, by privileges, promotions, and presents, to dignity in the state; while she was, on the other hand, prompted by the love of glory to flatter the representatives of public opinion, particularly in France, to invite Voltaire to her court, to call D'Alembert to complete the French *Encyclopédie* in St. Petersburg to suffer the familiarities of Diderot, to have a

regular literary agent (Grimm) in Paris, and to write herself several books in French; to promote literature and art, industry and agriculture, in her empire; to reform its laws, and attempt the abolition of many abuses; to build fortresses, cities, canals, hospitals, and schools; to organize exploring expeditions on land and sea; to annex and to conquer. She had the satisfaction of being called the Semiramis of the North, of being ranked by philosophers with Lycurgus and Solon, of hearing the words of Voltaire: "Light comes now from the North." But this glory was a transient applause; her reforms, undertaken for show, vanished without result; her works, mostly but commencements, crumbled before her death; her civilization corrupted Russia, and left it as barbarous as ever.

CATHARINE, SAINT, a saint of the church of Rome, whose anniversary is celebrated on Nov. 25. She was a virgin of Alexandria, and is said to have suffered martyrdom under Maximin. The military order of the knights of St. Catharine, on Mount Sinai, was established for the protection of the pilgrims who came to worship at the tomb of the saint, which was on this mountain, where her corpse was supposed to have been found. St. Catharine was believed to have been of high descent, and to have possessed remarkable mental attainments. Hence she has been often chosen as a patron of schools of philosophy. Several of the great Italian masters have furnished pictures of St. Catharine; the most beautiful is that by Correggio.

CATHARINE OF ARAGON, wife of Arthur, prince of Wales, and of King Henry VIII. of England. She was the daughter of Ferdinand of Aragon and Isabella of Castile. She was born in 1483, in the city of Alcalá de Henares, while her mother was engaged in an expedition against the Moors, died in Jan. 1536. Granada was not finally surrendered until the 9th year of her age; and much of her childhood was actually passed in the royal camp. At an early age, in accordance with the custom of the time and the policy of her country, she was betrothed to the young Prince Arthur of England, son of Henry VII., and never was marriage contracted under happier auspices. Catharine had all her mother's talents, dignity, virtue, piety, and prudence, without her coldness, austerity, fanaticism, or fierce zeal. She had all the dark-glowing, superb, stately beauty of her native land; a sweet temper, a kind heart, a gracious manner; while the young prince to whom she was contracted was handsome of person, eminently learned, and excellent of disposition. On Aug. 17, 1501, the princess and her train set sail from Coruna, but a fierce storm drove her back to the coasts of Castile; and it was not until October, in bleak and gloomy weather, that she landed at Plymouth, and was received not only with the pomp and splendor of a state ceremonial, but by the joyful greetings of the population of the western counties. On Nov. 12, being the day of St. Catharine, her patroness, chosen as such

in her honor, she made her solemn entrance to the capital over London bridge, whence she was conducted to the cathedral of St. Paul, and thence to the bishop's palace at Lambeth, where she was entertained on that night, and the one intervening, as well as on that following the wedding ceremonial, which was performed on the feast of St. Erkenwald, Nov. 14, 1501. It is well here to state, that it was proved on oath, many years afterward, when it became necessary for reasons which then arose to establish the facts of the conjugal relation, that they lived as man and wife happily together at Ludlow Castle; but it was for a short time only, as Arthur died of the plague within 6 months after the consummation of the marriage. On the death of Arthur, Henry duke of York, who had been educated for the church and was intended to hold the archbishopric of York or Canterbury, became prince of Wales and heir to the crown; and it was at once proposed by Henry VII., and acceded to by Ferdinand, contrary to the wishes of the young widow, who was now in her 19th year, and who wrote to her father earnestly deprecating the alliance, though professing entire obedience to his wishes, that she should be transferred as soon as Henry, who was only in his 12th year, should arrive at the age of puberty. A dispensation was easily obtained from the reigning pontiff, Julius II., and the ceremony of betrothal took place at the house of the bishop of Salisbury in Fleet street, June 25, 1503. For several years Catharine resided at the court of England, but on Henry attaining his 15th year, his father, who had lost his own fair and virtuous wife, and who had it in his mind to contract a marriage himself with Joan, the elder sister of Catharine, the widow of Philip of Burgundy, until he found the union impossible owing to the incurable insanity of the lady, compelled him to enter a protest against his marriage with his brother's widow. This protest was kept strictly a state secret, nor was its existence ever known or suspected until it was produced years afterward, in order to give a color to the proceedings in the case of the annulment of the marriage. At this very time, however, so far from disliking the lady or wishing to avoid the match, Henry was violently in love with Catharine; and his father actually took measures to restrict their intercourse, as fearing lest they should contract a clandestine marriage. Not very long after this interlude, however, in the year 1509, Henry VIII. succeeded to the crown on the demise of his father, and almost his first act was to hurry on his marriage with Catharine. It was celebrated at Greenwich on the day of St. Barnabas, with great pomp and rejoicing, to the delight of her father, who celebrated the event with grand festivals and tilts, after the Moorish fashion, with the jereed, in Spain. For many years the marriage was happy and prosperous; the queen lent herself to the love of her husband for pomps, pageantries,

maskings, and diversions of all kinds; accompanied him in his royal progresses; moderated his hasty temper; ever interposed on the side of mercy and justice; in every way exercised a beneficent influence over him; and used her power only for his own good, and that of his people. During his absence in the conduct of the war with France in 1513, Henry left her the sole regent of the kingdom; and on his return, in the following September, he rode post from Dover to Richmond incognito, to surprise the queen, and there, to borrow the words of Hall, "was such a loving meeting, that every one rejoiced who witnessed it." Yet at this very time he was false to her, with Elizabeth Taillebois, who was his first, and continued for many years his only mistress, until he became enamored, first of Mary, and then of Anne Boleyn. In the year 1516, having been already twice a mother of princes, who did not long survive their birth, Catharine bore a girl, who was called Mary, after her aunt, the beautiful queen of France, and who was afterward of unhappy memory as the persecuting queen of England. Eighteen months passed, and she became again the mother of a boy, who again died as soon as he saw the light; a disappointment which troubled Henry so much, that he publicly avowed his son by Elizabeth Taillebois, and created him duke of Richmond. In 1520 occurred the famous field of the cloth of gold, memorable in the life of Catharine for the fact that then Henry first became acquainted with Anne Boleyn. In about 2 years afterward, hearing that Anne was betrothed to Henry Percy, son of the duke of Northumberland, he took so much pains to break off the match by the aid of Wolsey, as proves that he was already desperately enamored of her. The lady, however, who did not care to be his concubine and saw no chance as yet of becoming his wife, was extremely indignant, and never forgave Wolsey his share in the matter. In the year 1527 she was recalled to court, which she had left in anger, and was reinstated in her old office of maid of honor, her father being created Viscount Rochefort. From this time forth, Catharine's life was as miserable as her conduct was irreproachable. From this moment Henry was determined to abolish his marriage with Catharine, and to make the maid of honor, who had perhaps thus far preserved her innocence, his queen. The mock trial of Catharine, her appeal to Rome, her beautiful address to her husband, her leaving the court as one wherein she could not have justice, are facts familiar to all readers of Shakespeare. For 6 long years the cruel agony continued; but when, in 1533, contrary to all Henry's hopes, the marriage of Catharine was declared by the council at Rome to be valid, Anne, who had been now some time almost openly his mistress, under the title of marchioness of Pembroke, being pregnant, a secret marriage was resorted to, the old one being yet undissolved, in order to legitimate the unborn child, whom Henry in his insane anxi-

ety for an heir had predetermined to be a son. At this time Catharine was expelled from Windsor, and informed that she was no longer queen, although she was in all respects as much and as legally so as ever, when she went her way meekly with her ladies, quitting the royal abode in which she had passed so many happy and unhappy days, with the beautiful and touching words: "Go where I may, I am his wife, and for him ever will I pray." She never again saw her husband or her child. Until after the public marriage of Anne, she was allowed the title of queen and the empty honor to be served on the knee, and to be treated with the external deference due to the rank which had been so rudely wrested from her. We know only of Catharine's life during her seclusion, between her abandonment and her divorce, that her time was passed among her faithful ladies in acts of charity, devotion, piety, varied only by the feminine arts and occupations of embroidery, to which she had always been addicted. Wherever she lived, the poor inhabitants of her neighborhood profited by her goodness, loved her, prayed for her, followed her with their sighs when she was removed from among them. In the mean time, finding that he could not have the marriage annulled at Rome, Henry determined that he would have it done in England, and to that end, that he would overthrow the church of Rome, build up an Anglican church, of which he would be pope himself, with a college of prelates and a clergy of his own, who should do his business in clerical matters, as his ministers did in civil affairs, at his sole bidding. All this Cranmer, who was raised to the archbishopric of Canterbury, vacant by the death of Warham, undertook to do for him, and speedily effected. His first step was to open his court at Dunstable, for the trial of the case of Queen Catharine's marriage; and as she steadily denied the validity of the court and its jurisdiction, and refused to appear, he pronounced her contumacious, and declared the marriage void and of no effect from the beginning, as incestuous and consummated in defiance of divine prohibition. The princess Mary was declared illegitimate, and Catharine was desired to abstain from the title of queen and content herself with the style of dowager princess of Wales. She, however, declined to renounce her title, and died, leaving a letter to her husband concluding with those touching words: "Lastly, do I vow that mine eyes desire you, above all things."

CATHARINE OF BRAGANZA, wife of Charles II., king of England, born 1688, died Dec. 31, 1705. She was the daughter of John IV., after 1640 king of Portugal, and brought her husband, in 1661, beside a rich dowry, Tangiers in Africa, and Bombay in India. She met at the court of the dissolute Charles bitter mortifications, which, however, she soon resigned herself to suffer with equanimity and mildness. Lord Clarendon says: "The queen had beauty and wit enough to make her-

self agreeable to the king; yet she had been, according to the mode and discipline of her country, bred in a monastery, where she had seen only the women who attended her, and conversed with the religious who resided there, and, without doubt, in her inclinations was enough disposed to be one of the number. And from this restraint she was called out to be a great queen, and to a free conversation in a court that was to be upon the matter new formed, and reduced from the manners of a licentious age to the old rules and limits which had been observed in better times; to which regular and decent conformity the present disposition of men and women was not enough inclined to submit, nor the king to exact. After some struggle she submitted to the king's licentious conduct, and from that time lived on easy terms with him till his death." Accusations against her of plots in favor of the Catholic religion were received favorably by the house of commons, but rejected by the lords. After the death of Charles (1685), she was treated in England with attention and respect. She returned to Portugal in 1698. Made regent of that country by her brother, Don Pedro, in 1704, she proved her ability in the war with Spain, which she carried on with firmness and success, though already 67 years old.

CATHARINE OF FRANCE, OR OF VALOIS, queen of England, born in Paris, Oct. 27, 1401, died in the abbey of Bermondsey, Eng., Jan. 3, 1487. She was the youngest child of Charles VI. of France, and his queen, Isabella of Bavaria. Her father having become insane, and her mother being absorbed by pleasures and politics, Catharine, as well as her brothers and sisters, was utterly neglected during her infancy. She became, however, a beautiful girl; so much so, that Henry V. of England, having asserted his claim to the crown of France, applied for her hand, but demanded an enormous dowry, consisting mainly in lands. The court of France declining these terms, Henry V. invaded the country, and, after the victory of Agincourt and the capture of Rouen, renewed his application, which was this time favorably entertained. Meanwhile, great changes had taken place: the duke of Burgundy, John the Fearless, had been assassinated, and his son Philip breathed nothing but vengeance against the dauphin Charles; Isabella herself was bent on destroying her own son; and both entered into negotiations with Henry which resulted in the treaty of Troyes, May 20, 1420, by which Henry V. was to receive the hand of Catharine and succeed to the throne of France after the death of Charles VI., the regency of the kingdom being placed in his hands until that time. "On Trinity Sunday, June 3," says Monstrelet, "the king of England wedded the lady Catharine at Troyes, in the parish church, near which he lodged. Great pomp and magnificence were displayed by the husband, as if he had been king of the whole world." "Her bridal music was the groans of oppressed France."

Catharine was taken to England and crowned Feb. 24, 1421. Henry, being obliged to return to France, left his young wife in England, where she gave birth, Dec. 6, to a son, afterward Henry VI. She was soon recalled to France, where she found her husband dying. Immediately after his death (Aug. 31, 1422), his only son was proclaimed king of France and England. Catharine now secretly married Owen Tudor, a handsome Welsh knight, who, according to some chroniclers, was the son of a brewer of Beaumaris, while according to others he was descended from a prince of Wales. Suspicions were awakened among the guardians of the young king, who behaved toward her with a harshness which is believed to have precipitated her death. Her eldest son by Owen Tudor, Edmund of Hadham, was the head of the Tudor family who ascended the throne of England half a century later.

CATHARINE DE' MEDICI, the queen of Henry II., and mother of Francis II., Charles IX., and Henry III., kings of France, and the only daughter of Lorenzo de' Medici, born in Florence in 1519, died in 1589. In 1583, when she was but 14 years of age, the pope, Clement VII., her uncle, negotiated the marriage of Catharine with Henry, duke of Orleans, second son of Francis I., who, it is said, would not have consented to the match, but that he felt sure that Henry would never ascend the throne of France, and that he was in extreme want of money, with which the pope was prepared to supply him. Entering the court of France in a somewhat secondary position, she applied herself to conciliate all parties, win all affections, and be every thing to all persons, affecting in the mean time to care nothing for affairs of state and to shun the turmoil of business. When she came to France, the duchess d'Étampes, and the celebrated Diana de Poitiers, afterward duchess of Valentinois, were ostensibly the mistresses of her father-in-law, the king, and of her husband; and to both she assiduously paid her court, though they notoriously hated one another. Nor when her husband became, by the death of his eldest brother the dauphin, and subsequently by the death of his father, the king of France, did she alter her policy or interfere, whether in the affairs of state or in his social and domestic arrangements, with her husband, or with his mistress. The duchess of Valentinois was virtually queen of France, until, at a grand tournament held at the castle of Tournelles, given in honor of the marriage of his eldest daughter, Elizabeth, with Philip, king of Spain, in 1559, a splinter from the broken lance of De Lorges, count of Montgomery, entered the eye of Henry, and cut him short in the midst of a splendid and victorious career. By his death his son, Francis II., a delicate stripling, weak both in health and intellect, lately espoused to the beautiful young queen of Scots, the hapless Mary, who was, on her mother's side, a Guise de Lorraine, succeeded to the throne, and the ambition of Catharine

flattered itself at once that she was now about to grasp position. But she was disappointed; for the weak and uxorious king was wholly under the influence of his beautiful bride, and she was as completely under the rule of her maternal uncles, the celebrated Le Balafre, Francis duke of Guise, and the cardinal Lorraine, who were in no sort favorable to the schemes of the queen mother. Francis about this time began to suffer from constitutional earaches. Catharine, who cared nothing for religion, connected herself with the Huguenot leaders, Condé, Coligni, and the king of Navarre, and a plan was laid for seizing and imprisoning the young sovereigns at Amboise, bringing the Guises to the scaffold, and governing the realm by a council of regency, composed of the Huguenot princes under the guidance of Catharine. The plot, however, took wind; the princes were compelled, in order to avoid the suspicion of complicity in the conspiracy, to witness the slaughter of their partisans; while Catharine, finding that their arrow was shot in vain, immediately deserted them, and joined the party of the Catholic league. The next plan was to assassinate the duke of Condé, in the presence of both Francis and Mary at Orleans, which city they were about to visit in state, on a royal progress; and on Francis positively refusing to give his assent to the murder, one of the Guises is said to have exclaimed: "Now, by the double cross of Lorraine, but we have a poor creature for our king!" It seems more than probable that the death of Francis II. was at once resolved, and there is little doubt that he died of poison, dropped into the porches of his ear while sleeping, not without the privy of Catharine, who, by the accession of Charles IX., a minor, succeeded as regent (1560) to the actual if not the nominal sovereignty of the realm. She now gave full swing to her atrocious genius. She first plunged all her children, in the flower of their youth, into such a vortex of licentious pleasure and voluptuous dissipation, that, as she intended, they were speedily divested of all moral sense and unfitted for every sort of mental activity or exertion. It was on the occasion of the marriage of her daughter Marguerite de Valois, with Henry of Navarre, that Catharine prevailed on Charles to give the orders for the fatal massacre of St. Bartholomew's, executed on Aug. 24, 1572, on the signal given by the tolling of the bell of St. Germain l'Auxerrois. From the moment of that terrible event, his consent to which had been wrung from him most reluctantly, and which it is believed he would have counteracted when it was too late, the unhappy Charles was a prey to the most horrible tortures of remorse, nor could he conceal the detestation he felt for the mother who had plunged him into such an abyss of blood and guilt. Catharine, it seems, had never loved him, nor Henry either, who was now absent in Poland, of which remote country he had been elected king, and whither he had gone reluct-

antly, at her urgent solicitation, amounting almost to compulsion. Francis, duke of Alençon, was her favorite, as of a spirit the most kindred to her own; and it is probable that her anxiety to have Henry far distant from the scene of action, arose from a desire to enable the son of her choice to avail himself of any contingency that might occur, in order to usurp the throne during his brother's absence. Concerning the mode and causes of the death of Charles IX., there exists considerable doubt. It is more than suspected, however, that he was poisoned by his brother Francis, with the connivance of his mother, by means of a treatise on hawking which had been thrown in his way, that being a sport of which he was passionately fond, with its leaves gummed together with some poisoned gluten, so that when he moistened his fingers at his lips to disengage the pages, he took in at every touch the deadly medicament. If it were so, it was a lost crime; for, on hearing of the death of his brother the king, Henry, in an evil hour for himself, escaped by stealth from the throne of a country whose people loved him, and came to claim that of a land where he was both hated and despised. On his return, he threw himself wholly into the hands of his mother, who again plunged the country into religious civil wars, in which Henry IV. of Navarre gained all the glory, and Henry of Guise all the power, until the latter, attempting to usurp the sovereign power of the realm, was assassinated by Henry's orders in the royal cabinet, while his brother the cardinal was on the next day murdered in prison. This *coup d'état* is so exactly in keeping with the character and policy of Catharine, and corresponds so closely with her plan for taking off the prince of Condé, in the reign of Francis II., that we can scarcely err in ascribing to her the conception of the scheme. It was the ruin of Henry, of herself, and of all her wishes as to the succession of the crown of France; for, how careless and indifferent soever she might be as to matters of religion, she did not certainly desire that a Huguenot and a Bourbon should ascend the Catholic throne of the Valois. Such, however, was the result of her machinations. The murder of the Guises united all Catholic France against Henry III., and he found that he had now no option or alternative but to call Henry of Navarre to his assistance, and to put down the now rebellious Papists by the forces of the late rebellious Protestants. Henry of Navarre, who was now, by the death of Alençon, the next heir to the throne of France, readily assented, and on bringing up his forces the 2 princes laid siege to Paris, which was defended by the duke de Mayenne, the younger brother of the murdered Guise. But while the siege was pending, Henry III. was himself assassinated by a fanatic monk, Jacques Clement, probably instigated by the Guises, on Aug. 1, 1589, in the camp at St. Cloud. Henry IV. succeeded him, and did much to heal the wounds which had been inflicted on France

by Catharine de' Medici.—See CHARLES IX., FRANCIS II., HENRY III., HENRY IV., BARTHOLOMEW MASSACRE.

CATHARINE OF SIENNA, saint, born 1347, died April 30, 1380. She entered at 20 years of age the order of Dominican nuns. The remarkable superiority of her natural endowments, joined to her extraordinary spiritual graces, rendered her one of the most conspicuous and influential persons of her time. She restored the Florentines to the favor of Gregory XI., and exhorted that pontiff to leave Avignon for Rome. She took part in the schism of that time, and wrote in defence of Urban. Her zeal for the conversion of sinners knew no bounds, and the most hardened could not resist her exhortations to a change of life. Her charity to the poor, and personal devotion to those who were suffering from the most offensive maladies, were also boundless. She was canonized by Pius II. in 1461. Her anniversary is celebrated on April 30. The works of this saint are principally treatises upon devotional subjects, and letters written in very pure Italian; she is also the reputed author of some Italian poems.

CATHARINE FIESCHI ADORNO, saint, born in Genoa, 1447, died Sept. 14, 1510. Her father was viceroy of Naples. She is said to have been one of those rare children who live in the perfect practice of Christian virtue from their early years. At the age of 18 she was desirous to consecrate herself to God in the religious state; but she yielded in obedience to her parents, who married her at the age of 16 to Julian Adorno, a gay young nobleman of Genoa. Her life with him was for 10 years a series of sorrow, sufferings, and mortifications. He was profligate, brutal, and prodigal in the use of the fortune which she brought him. In a short time they found themselves reduced to poverty; but her patience and good example caused his reformation, and he died a penitent. After his death, Catharine was many years mother superior of the great hospital of Genoa. Practising the greatest charity, she performed the meanest offices and dressed the most loathsome sores. She also extended her care to the sick and suffering throughout the city. St. Catharine, next to St. Theresa, is the most profound female writer that the Roman Catholic church has produced. Her 2 principal treatises, which for the most part may be considered as the records of her own experience, are entitled "Purgatory," and "A Spiritual Dialogue." Her works have not hitherto been within the reach of general readers; but an American translation of her treatises and of her life, written by her confessor, Marabotto, has just been completed (1858).

CATHARINE PARR, the 6th and last wife and reliot of Henry VIII. of England, date of birth uncertain, died Sept. 30, 1548. She was the daughter of Sir Thomas Parr, and was married first to Edward Burghes and secondly to Lord Latimer. After a 2d widowhood of more than

a year, the king of England married her, July 13, 1548. For the time in which she lived she was a very well educated and intellectual woman, and had studied the Holy Scriptures with much attention. She was a zealous Protestant partisan, and would often engage in discussions with the king as to the propriety of completing the reformation. She even patronized Anne Askew, who was racked and burned for heresy in 1546, and perused the prohibited books. Her disputatious turn of mind brought her into great peril on one occasion. After one of these arguments on religious subjects with her husband, Henry was much incensed at her, and, on the instigation of the bishop of Winchester, gave a warrant for her committal to the tower on the charges of heresy and treason. She received immediate intelligence of her danger, waited on the king in the evening, and turning the conversation to the old topic, expressed her regard for the king's theological learning. "No, no, by St. Mary," he replied, "I know you too well. Ye are a doctor, Kate, able to instruct us and not to be instructed by us." To which she adroitly rejoined "that it seemed he had much mistaken her freedom in arguing with him, since she did it to engage him in discourse, to amuse this painful time of his infirmity, and that she might receive profit by his learned discourse." "And is it even so?" said the king; "then we are perfect friends again." The following morning the king took a walk in the garden with Catharine, and at this moment the chancellor, Wriothesley, who knew nothing of the reconciliation, came with the guards to execute the warrant for the arrest of the queen. The king flew into a passion, called Wriothesley a knave and other epithets, and bade him begone. This experience made Catharine more prudent for the future; yet her danger was again great when Anne Askew was tortured in order to ascertain her accomplices and convict the queen of heresy, but the admirable fortitude of the sufferer was the salvation of her royal patroness. She retained her hold upon the king's affections up to the time of his death in 1547, and received a legacy of £4,000 from him in addition to her jointure. Shortly after the king's death she was married to her 4th husband, Lord Seymour, high admiral of England and brother of the duke of Somerset, the protector of England and guardian of Edward VI. She did not long survive this marriage, and died in childbirth unregretted by her husband, who repented of his union with Catharine and aspired to the hand of the princess, afterward Queen Elizabeth. She is one of those royal personages who have won a position in the republic of letters. She wrote "Queen Catharine Parr's Lamentations of a Sinner," which was published by Lord Burleigh in 1548. In her lifetime she published a volume of prayers and meditations. Her letters are preserved in Strype's annals, Hayne's collection of state papers, and in the Ashmole collection. She employed scholars to translate from the

Latin into English Erasmus's paraphrase on the New Testament, and wrote a Latin letter to the princess, afterward Queen Mary, exhorting her to translate the paraphrase on St. John.

CATHARINE PAULOWNA, queen of Württemberg, grand princess of Russia, daughter of Paul I. and younger sister of Alexander I., born May 21, 1788, died Jan. 9, 1819. In 1809 she married George, duke of Holstein Oldenburg. Having lost him in 1812, she accompanied her brother Alexander on his campaigns in Germany and France (1813-'14), to Paris, London, and the congress of Vienna (1815), assisting him by her talents and resolute spirit. The marriage of her younger sister to the prince of Orange is said to have been effected by her influence. In 1816 she married William, crown prince of Württemberg, whose acquaintance she had made during her travels. During the famine of 1816 in that country she proved her benevolence by the formation of female associations and an agricultural society. She was active in promoting the education of the people. She left 2 sons by her 1st, and 2 daughters by her 2d marriage.

CATHARISTS (Gr. *katharoi*, pure), a Christian sect which, between the 11th and 14th centuries, spread over all Europe, and was most powerful in Italy and the south of France. Their doctrines and institutions bore an oriental impress, but were peculiarly elaborated and modified by the scientific spirit of the western church. Akin to the early Gnostics, the Manichæans, Encrites, Bogomiles, Paulicians, Albigenses, and Waldenses, they are not to be confounded with either of these. There were 2 parties of Catharists, one accepting absolute dualism, and supposing 2 opposite principles to subsist from all eternity, with 2 creations corresponding to these principles; the other deriving all evil and imperfection from the apostasy of a higher spirit, and maintaining a limited dualism. They agreed in regarding the sidereal system, and every thing visible here below, as perishable and evil; but as having its correspondent in an upper world in a form adapted to that higher region of existence. According to one party the evil principle stole into the heavenly world and seduced the souls which the good principle had created to come down to earth, where he confined them in bodies of his own creation. According to the other party, the orderer of matter was originally a good but now a fallen spirit, who, ambitious to set up an independent kingdom of his own, persuaded a third part of the angels to apostatize with him. The former held that there have never been more souls on the earth than on the first day after they were misled thither by Satan, and that by process of transmigration and return to heaven their number is constantly diminishing; the latter supposed originally only 2 human souls, from which all others have proceeded. Both parties rejected the whole, or nearly the whole, of the Old Testament, which they affirmed to be a revelation of the evil principle. Christ, they



thought, brought with him from the celestial regions a higher ethereal body. He was sent by God to recover men from the earthly sphere in which they are bound, and to bring them into harmonious connection with the upper world; and the final result of his coming will be the destruction of the creation produced by Satan, and the return of all visible things to the original chaos, to which wicked spirits shall be banished.—The ideas of the Catharists were rather popular than metaphysical, and the sect was more influential by the ethical than by the speculative part of its system. They all agreed in opposing the prevalent traditional and ceremonial usages, and attempted to realize the idea of an invisible church. They renounced baptism by water, and laid great stress on the baptism of the spirit, which should be performed by the imposition of hands in connection with prayer. Their church edifices had neither images, cross, nor bell, and their worship consisted only of the reading and exposition of a passage of the New Testament, followed by the benediction, which was received kneeling. Though, in some respects, the precursors of the Protestant principle, they were yet essentially removed from it by the merit which they ascribed to works over faith as a condition of salvation. Their rigid asceticism admitted neither of animal food, conjugal relations, nor the possession of earthly goods. Yet this standard was rather ideal than actual. It was attained by the *perfecti*, the esoterics of the sect, but was modified in the case of the *credentes*, who constituted the large exoteric portion. From the former, who were popularly known as "the good men," and who copied the example of Christ by wandering about homeless, and in poverty, were chosen all the officers of the sect.—The Catharists were zealous disseminators of their principles. Originating in some Greek-Slavonian cloister of Bulgaria (whence one of their names, the Bulgarians), they prevailed for several centuries in the western countries of Europe, maintaining themselves in Bosnia in spite of hostility, till near the close of the 15th century, when the sect passed over into Mohammedanism. In 1085 the first Catharists were discovered in Italy, near Turin, and their chief was burned; but within a century from that time Catharist churches and dioceses were formed throughout upper Italy and France. It has been maintained, without sufficient authority, that Dante belonged to the sect, was even a preacher to a congregation of Catharists at Florence, and that the *Divina Commedia* was a pasquinade in their favor against the prevalent church. St. Bernard travelled through the country south of the Alps, trying in vain to convert them, and found them protected by princes and nobles, whose sons and daughters were intrusted to them for education. In 1167 they held a synod near Toulouse to arrange uniformity of policy and doctrine. They spread throughout Spain and Germany, but though some of them were discovered in London in 1210, they seem to

have made little progress in England. They availed themselves of the disputes between the popes and emperors to spread their doctrines, and in the 12th century dared to elect for themselves a pope in France, and in the 13th century another in Bulgaria. In later times the knights templars were asserted to have been Catharists. The courage and calmness with which they uniformly met death for their faith, excited the admiration of their friends, and was attributed, by their enemies, to diabolical support.

**CATHARPINGS**, in nautical parlance, ropes serving to brace in the shrouds of the lower masts behind their respective yards.

**CATHOART**. I. WILLIAM SHAW, earl, a British military officer and diplomatist, born in 1764, died June 17, 1843. According to a custom of the Scottish gentry, he completed his education by taking a degree in law, although without intention of practising that profession. On the breaking out of the American war he entered the British army, and speedily rose to be aide-de-camp to Gen. Spencer Wilson and Sir Henry Clinton. Subsequently he commanded the 29th regiment of infantry, and finally was appointed quartermaster general. Recalled to England, he joined the Walcheren expedition with the rank of brigadier-general. Having distinguished himself at Bommel and elsewhere on the retreat, he carried back the remains of the cavalry to England, where he was promoted to a higher rank. In 1807 he took his seat as a representative peer of Scotland. The same year he was appointed commander-in-chief of the troops destined to act against Copenhagen, and on the fall of that city and capture of the Danish fleet was created a peer of England. In 1812 he was sent as minister plenipotentiary to Russia. The emperor Alexander being then with the army, Lord Cathcart joined him at head-quarters, where he remained during the campaign. He was a witness of the interview between the sovereigns of Russia, Austria, and Prussia; at Dresden he stood but 2 paces from Morast when that general received his death wound; entered Paris with the allied sovereigns, and subsequently acted as British plenipotentiary in the congress of Vienna. On the fall of Bonaparte he again repaired to Paris, and signed the treaty of peace which followed Waterloo. An earl's coronet recompensed these services. Several succeeding years of his life were spent as minister at the court of Russia. II. SIR GEORGE, a British general, son of the preceding, born in London, May 12, 1794, died Nov. 5, 1854. He was educated at Eton and Edinburgh, and entered the army in 1818. His father having been soon afterward appointed minister to Russia, young Cathcart accompanied him as attaché, and was subsequently his secretary at the congress of Vienna. Rejoining the army, he served as aide-de-camp to Wellington at Waterloo. The return of peace placed him on the list of lieutenant-colonels, in which rank he held commands for some years in Nova

Scotia and the West Indies. In 1834 he retired on half pay, but in 1837, in consequence of the troubles in Canada, he was placed in command of the troops and militia south of the St. Lawrence. Returning to England in 1844, he again retired on half pay, receiving the honorary appointment of governor of the tower of London, which he retained until 1852. War with the Caffres having once more broken out, Col. Cathcart was selected to assume the governorship and command of the army at the Cape of Good Hope. By a succession of well-executed manoeuvres, he drove the Caffres back from their coverts, and removed them beyond the limits of the colony. Appointed to the 4th division of the army in the Crimea, he fell fighting gallantly at the battle of Inkermann.

**CATHEDRAL** (Lat. *cathedra*, a seat), a church containing a bishop's throne or seat, the chief church of the diocese. Its usual form is a Latin or Greek cross, and it is not distinguished architecturally from the basilica. In the old basilicas there was a transverse hall at the end, not intentionally resembling a cross; but more modern architects, perceiving the resemblance, changed the position of the transept, making the church cruciform. The church of St. John of Lateran, at Rome, founded by Constantine, is the episcopal church or cathedral of the pope, and bears over its chief portal the inscription, *Omnium urbis et orbis ecclesiarum mater et caput*, "mother and head of all the churches of Rome and the world." At its chief altar none but the pope can read mass, for it covers another ancient altar at which the apostle Peter is said to have officiated. The basilica of St. Peter's at Rome may be mentioned as surpassed by no cathedral in antiquity and splendor, and equalled by none in magnitude. In A. D. 90, St. Anacletus, bishop of Rome, who was ordained by St. Peter himself, erected an oratory on the site of the apostle's burial, after his crucifixion. In 306 Constantine built a basilica on the spot. In 1450 Nicholas V. commenced a building on plans of Bernardino and others. Paul II. continued it, and Julius II. secured the services of Bramante, whose plan was a Latin cross and an immense dome on arches springing from 4 large pillars. The latter died in 1514, and Leo X. appointed Giuliano Sangallo, Giovanni da Verona, and Raphael, who strengthened the pillars for the dome; but Sangallo dying in 1517, and Raphael in 1520, Leo employed Baldassari Peruzzi, who changed the plan to a Greek cross. Paul III. employed Antonio Sangallo, who returned to Bramante's plan, but Sangallo died very shortly, and the pope appointed Giulio Romano, who also died. The work was then given to Michel Angelo, then in his 79d year. Paul III. died in 1549, but Julius III. continued Angelo in his place, giving him full authority to change whatever he wished in the building as it then stood. Michel Angelo returned to the Greek cross, again strengthened the piers

for supporting the dome, and formed the plan for it as it now exists. The drum of the dome was completed before he died in 1563. Pope Pius V. appointed Vignola and Pirro, with orders that they should adhere to Angelo's plans. The dome was not finished until 1590 by Giacomo della Porta. Sixtus V. gave 100,000 gold crowns annually toward its completion. In 1605 Paul V. employed Carlo Maderno, who changed the ground plan back to the Latin cross. The nave was finished in 1612, the façade and portico in 1614. The church was dedicated by Pope Urban VIII. on Nov. 18, 1626. Under Alexander VII. in 1667, Bernini finished the colonnade. The building of St. Peter's, from its foundation in 1450 until its dedication, occupied 175 years; and if we include the work done under Pius VI., 3½ centuries passed away before it was completed, during which time 48 popes reigned and died. The dimensions of the church are as follows: length of the interior 602 English ft., length of transept from wall to wall 445 ft.; height of nave 150 ft., of side aisles 47 ft.; width of nave 77—89 ft., of side aisles 21 ft.; circumference of pillars which support the dome 282 ft. The cupola is 193 ft. in diameter. The height of the dome from the pavement to the base of the lantern is 400 ft., to the top of the cross 480 ft. The dome is encircled and strengthened by 6 bands of iron. A stairway leads to the roof, broad and easy enough to allow a loaded horse to ascend. The annual cost of keeping the church in repair is 80,000 scudi.—At Milan the first building was destroyed by Attila, the next one was injured by fire, and the first stone of the present structure was laid by Giovanni Galeazzo Visconti on March 15, 1386. The ground plan is a Latin cross terminated by an apsis. Its dimensions are: length 435 ft.; breadth of body 252 ft., between the walls of the transept 287 ft.; width of nave from centre to centre of the columns 67 ft., which is double the width of the side aisles; height of the crown of the vaulting of nave 153 ft.; height from the pavement to top of the statue of Madonna 355 ft. The interior is divided into a nave and 4 aisles, by 4 ranges of clustered pillars. Fifty-two pillars, each formed of 8 shafts, support the arches of the roof. These pillars are 80 feet high, i. e. base 4 ft., shaft 57 ft. 6½ in., capital 18 ft. 6½ in.; the diameter of shaft 8 ft. There are fine interior doorways in Roman style. The pavement is laid in mosaic in red, blue, and white marble. The cathedral is built of white marble, and covers a space of 107,782 sq. ft.—The duomo at Florence is one of the most beautiful specimens of the Italian-Gothic style. It was begun in 1294 or 1298, with the plan, according to Vasari, of Arnolfo di Lapo, according to Mohini, of Arnolfo di Cambio da Calle, and was finished about 1444. Several architects were employed upon it, among them Giotto, Taddeo Gaddi, and Andrea Orgagna. Its completion was intrusted to Brunelleschi, who designed

the cupola. The cathedral is in length 387 ft., the transept 334 ft.; the nave is 153 ft. high, the side aisles 96 ft. 6 in. The cupola is octagonal in form, 138 ft. 6 in. in diameter, and in height from cornice of the drum to the eye of the dome 133 ft. 6 in. Michel Angelo used this dome as a model for that of St. Peter's. The interior of the duomo is rather dark, the windows being small and the glass darkly stained. The pavement is tessellated in red, blue, and white marble. The frescoes in the cupola are from designs by Vasari. The entire edifice covers 84,802 sq. ft.—Germany has some fine cathedral churches, among which that at Cologne is one of the most imposing Gothic structures in Europe. It was begun in 1248, during the reign of the elector and archbishop of Cologne, Conrad of Hochsteden, but it has remained unfinished. The original architect is unknown. The length of the cathedral is 511 ft., breadth 231 ft., and height of the towers 500 ft. Externally it has a double range of flying buttresses and intervening piers, and a perfect forest of pinnacles. The cathedral of Dantzic was begun in 1343 and finished in 1503. The vaulted roof is 98 ft. above the pavement, supported by 26 slender brick pillars. Around the interior are 50 chapels founded by the chief citizens of the place, as burial places for their families. The great ornament of this building is a painting of the "Last Judgment," attributed to John Van Eyck. It was painted for the pope, but on its way was captured by pirates. Being retaken by a Dantzic vessel, it was deposited in the cathedral in 1807.—In Antwerp is the cathedral of Notre Dame, one of the largest and most beautiful of Gothic buildings in the Netherlands. It was commenced about the middle of the 13th century, and completed in about 84 years. It is 500 feet long, and 250 wide. In 1533 it was much injured by fire. It contains the celebrated masterpiece of Rubens, the "Descent from the Cross."—During the 13th century, architectural art was highly cultivated throughout all Europe, and among the magnificent works of that age, those of France are by no means in the last rank. Chartres, Rheims, Amiens, and Paris each possess beautiful cathedral churches. The one at Rheims was commenced in 1211, and dedicated in 1241. It occupies 67,475 sq. ft. The cathedral at Amiens was begun 1220, and completed in 1257, but was partially destroyed by fire, and not again finished until 1272. It covers 71,208 sq. ft. The cathedral of Notre Dame in Paris stands upon the spot once occupied by a Roman temple. It is said that a church dedicated to St. Stephen was erected on the same site about 865, in the time of Valentinian I., and was enlarged in 522 by Childebert, son of Clovis. Robert, son of Hugh Capet, undertook to rebuild this church, which was called Notre Dame from a chapel which Childebert had dedicated to the Virgin. But this church was never finished and fell into ruins. The first stone of the present edifice was laid about 1163, by Pope Alexander III., Maurice de Salicio being bishop of the

diocese. The high altar was consecrated in 1183 by Henry, legate of the holy see, and in 1186 Heraclitus, patriarch of Jerusalem, officiated in the church. The west front was finished by Maurice de Sully, the bishop in 1223. The southern transept with its portal was completed in 1257, and the northern transept and portal in 1312 by Philip the Fair. The western doors with their iron work were made about 1570-'80 by Biscourette. The dimensions are as follows: length 390 ft., width of transept 144 ft., height of vaulting 102 ft., height of western towers 204 ft., width of front 128 ft., length of nave to transept 186 ft. The pillars of the nave are 4 ft. in diameter, resting on gravelled beds 18 ft. below the surface. The style of architecture is pure pointed. The nave and side aisles are paved with marble; the aisles around the choir are paved with stone and black marble. An immense vault, extending the entire length of the nave, was constructed in 1666 for the interment of the chaplains, &c. The organ is very fine, 45 ft. high, 36 in breadth, and has 3,484 pipes. The interior of Notre Dame is not so rich in decorations as the exterior. The arches of the nave are pointed; the piers are circular pillars, with large and well-formed capitals. The pillars of the aisles are alternately circular and clustered. The cathedral covers 64,108 sq. ft.—England has many cathedrals worthy of particular mention. That at Salisbury is the most perfect and beautiful specimen. It was founded by Bishop Richard Poore, in the year 1230, in the reign of Henry III., and was finished in 1280. Its plan is a double cross, in extreme length outside 480 ft., length of transept 233 ft.—St. Paul's, London, was commenced in 1675, Sir Christopher Wren being the architect, and was finished 1711. It is built of fine Portland stone, in the form of a Latin cross, its length being 500 ft., the transept 285 ft. long, and the west front 180 ft. wide. The towers at the west front campanile are each 223 feet high. The dome is thrice the height of the roof, being 365 ft. from the ground, and 256 from the floor of the church, and it is 145 ft. in diameter. Simple ratios exist between the principal dimensions. The windows are mainly 12 ft. wide by 24 high, the aisles 19 ft. clear width by 38 in height; the central avenue is 41 by 84 ft.; the domed vestibule at the west end is 47 ft. square by 94 ft. high. The architectural elevation has two orders, the lower being Corinthian and the upper composite. The interior lacks in ornament, disappointing one who has seen the cathedrals on the continent. A still graver defect is the darkness under the dome, the light being scantily admitted and not well distributed. It was begun and finished under one architect, with a few mean exceptions. The organ was built in 1694 by Bernard Smydt. St. Paul's is the 5th cathedral of Europe in extent, being smaller than St. Peter's, and the duomos at Florence, Milan, and Amiens.—The corner stone of a new and magnificent cathedral was laid in New York, Aug. 16, 1853.

**CATHELINEAU**, *Jacques*, generalissimo of the Vendéans in the revolt of 1793 against the revolutionary government of France, born at Pin-en-Mauges, Maine et Loire, Jan. 5, 1759, died at St. Florent, July 14, 1793. After having been engaged for some time in the business of his father, who was a mason, he became a linen peddler, and after the outbreak of the French revolution, was poor and embarrassed with the cares of a large family. His religious devotion was so great, and so well known in his province, that he was called the saint of Anjou. A bloody fight which took place at St. Florent, March 12, 1793, between the republican troops and the royalists, on the occasion of a levy for the army according to a recent decree of the convention, roused the spirit of Cathelineau, and at the head of a body of youths he attacked and expelled the garrisons of Jallais and Chollet. As the number and courage of his bands, though without regular arms, were continually increasing, he fought several engagements, mostly with success. After the taking of Saumur (June 13), the want of greater union in the operations of the insurgents being generally felt, Cathelineau was elevated to the dignity of general-in-chief, as the most popular of the leaders. He marched against Angers, which made no resistance; but an attack on Nantes, though undertaken at the head of a large collected army, and though the city had no fortifications, and was defended only by one regiment of the line, ended, after a whole day of desperate struggle (June 29), in the dispersion of his troops. At a last and nearly successful effort to take the city, Cathelineau was wounded and carried to St. Florent, where he lived for a fortnight. After the restoration of the Bourbons, his surviving children were rewarded with pensions, and a statue was erected to his memory at his birthplace, which was broken in 1832 by the soldiers of Louis Philippe.—One of his sons, who in 1815 took part in an anti-Napoleonic movement of the Vendée, was shot in 1832 while engaged in the conspiracy of the duchess of Berry.

**CATHELINOT**, *Cathelinot*, or *Ildefonse*, a Benedictine monk, born in Paris in 1670, died at Saint Mihiel, June 15, 1756. He was destined for the pulpit, but devoted himself at the abbey of Senones, under the instructions of Calmet, whose co-laborer he afterward was, to literary pursuits. He wrote a Bible dictionary, and also contributed the supplement of Calmet's, which last has alone been published of all his numerous works.

**CATHODE** (Gr. *kata*, downward, and *odos*, way). The poles of the battery were called by Prof. Faraday electrodes. To the one which is supposed to receive the electric current, and which is therefore called negative, he gave the name of cathode; and to the other, which is supposed to flow over with electricity and to be consequently in a positive state, the name anode was given. In the wires proceeding from the battery, the electric current is supposed to pass through that from the copper, round to the

zinc plate; and the term poles is applied to the ends made by a break in this wire. As the electricity flows from that connected with the copper, this is the positive electrode, or the anode; while the opposite pole leading to the zinc plate receives the current, and is the negative pole, or the cathode. But in the battery itself, the electricity being supposed to be generated at the zinc plate, this is called the anode or positive pole or plate, and the copper the negative. The significance of the terms introduced by Prof. Faraday is explained by his supposing the wires of the battery to be so arranged, that the electric current passing through a body interposed between the poles traverses from E. to W. parallel with the currents supposed to be flowing through the earth. The anode in this arrangement is toward the E. or rising sun, and the cathode toward the setting sun. See **ELECTRODYNAMICS**.

**CATHOLIC CHURCH**. See **ROMAN CATHOLIC CHURCH**.

**CATILINE**, or *Catiline*, *Lucius Sergius*, a Roman conspirator, killed in the engagement of Fesula, 62 B.C. He was the descendant of an ancient but decayed patrician family, and spent his youth and early manhood in a career of profligacy and crime, taking a bloody part in the proscriptions of Sylla, when even some of his own relations became his victims. He was suspected of criminal intercourse with a vestal, and believed guilty of the secret murder of his first wife and his son, committed in order to marry another woman. All this did not prevent him, at that period of moral decline and general corruption, from obtaining important offices and aspiring to the highest dignities in the republic, being able by his mental and bodily powers, of which even his enemies speak with a kind of admiration, to undertake every task. Having been sent as prætor to Africa, he returned in 66 B. C. to Rome, to become a candidate in the next consular election, but was disqualified by a charge of extortion in his province, directed against him by Clodius Pulcher, known by his later enmity to Cicero. The newly elected consuls were convicted of bribery, and Cotta and Torquatus, their accusers and competitors, took their places. On these the disappointed Catiline resolved to wreak his vengeance, conspiring against their lives with Autronius, one of the deposed consuls, with Cn. Piso, and others. The first day of the consulship was fixed for the assassination, but Catiline frustrated the attempt by his impatient haste in giving the signal. This failure only served to exasperate Catiline, and to stimulate him to greater undertakings. Ruined by debt and debauchery, he was now bent on forming a new conspiracy with the purpose of exterminating the whole body of the senate, murdering all the magistrates of the republic, and sharing its sway and treasures with his followers. Such at least is the representation of great contemporary writers, whose impartiality, however, may be questioned. The corruption of the times favored his

designs; ruined nobles of all ranks, eager to escape by some change the consequences of bankruptcy, profligates and intriguing persons of both sexes, joined him; many veterans of Sylla, who had squandered their spoils, were found ready to renew the familiar scenes of proscription; the poor and restless populace could easily be used. His chief coöperators were P. C. Lentulus and P. Autronius, ex-consuls, L. Calpurnius Bestia, tribune elect, Cethegus, 2 nephews of Sylla, and others. It was now his interest to be elected consul; he became a candidate, but was again unsuccessful. Cicero was elected with C. Antonius. Catiline, who dreaded the patriotic activity of the former, but counted on the criminal connivance of the latter, now pushed on with greater vigor. The plot was matured; troops were levied, especially under C. Manlius, a centurion of Sylla, in the vicinity of Fæsulæ, in Etruria; arms were provided, the parts of the drama distributed, the lists of proscription made out, and the day fixed for the assassination of the consuls and the general conflagration of the city. The watchfulness of Cicero saved himself and the republic. Fulvia, the mistress of one of the conspirators, was induced to communicate all the particulars; C. Antonius was made harmless by the promise of Macedonia as a province. Informed by Cicero, the senate intrusted the consuls with absolute power to save the republic from the threatening danger. At the following consular election Catiline was again rejected, and in the night of Nov. 6, 68 B. C., he declared in a secret meeting to his ringleaders that the time of action had arrived. Cicero, who knew every thing, summoned the senate, and delivered his first great oration against Catiline, giving full and ample information of all the facts. Catiline was bold enough to be present and to attempt his justification, but his voice was drowned by the cries of "Enemy" and "Parricide" from the indignant senators, and he was left on his deserted bench a spectacle to the assembly. But he was still free, and left Rome in the following night to join the camp of Manlius, leaving the management of affairs at the capital to Lentulus and Cethegus. Cicero now addressed the people in the forum, justifying his conduct; the senate declared Catiline and Manlius enemies of the republic, while legal evidence against the conspirators at Rome was furnished by the communications of the ambassadors of the Allobroges, who, being sent to Rome for the redress of grievances, were tempted by Lentulus to join the conspiracy, and to induce their nation to assist in it. Cicero, who received the intimation from their patron, persuaded them to feign an active participation, and to draw from Lentulus a list of the conspirators, as if by it to induce their countrymen to join in the enterprise. Lentulus and his friends fell into the snare. They were now brought before the senate, assembled in the temple of Concord (Dec. 4); their guilt was proved. Having delivered his third oration

before the people, Cicero on the next day again convoked the senate to deliberate on the punishment of the traitors. The debate was highly animated. Silanus, the consul elect, gave his opinion for the immediate death of all of them; this was combated by the young Julius Cæsar, who was satisfied with their arrest and the confiscation of their estates. Cicero gave no opinion, but painted in strong terms the dangers of the state. Cato, voting for death and for immediate efforts against the rebels in the field, made an appeal to the patriotism of the senate, and prevailed. A decree was passed, and Lentulus and his companions were strangled in the night in their prison; an army was sent against Catiline under the consul Antonius, but unwilling to fight against his friend, he gave the command to his legate Petreius. They met near Fæsulæ. Catiline defended himself desperately, but in vain; when the battle was lost he threw himself into the midst of his enemies, and fell fighting.—The renown gained by Cicero by the detection of the conspiracy, is equalled by the celebrity of his orations against Catiline. Sallust's life of this conspirator is one of the most remarkable productions of ancient history.

**CATINAT DE LA FAUCONNERIE**, NICOLAS DE, a French general, born in Paris, Sept. 1, 1687, died Feb. 22, 1712. He entered the army as an ensign, and at the siege of Lille in 1687, so conducted himself as to attract the notice of Louis XIV. His subsequent exploits obtained for him in 1688 the rank of lieutenant-general, and in 1693, after he had conquered the greatest part of Savoy, he received the marshal's staff. In 1701 he commanded the army in Italy against Prince Eugene, but failing to arrest the progress of the prince, Villeroy was appointed to his place, and Catinat served under him, and in attacking the intrenchments at Chiari he was repulsed and wounded. He commanded in Germany for a short time, and spent the rest of his life at his estate of St. Gratien, near St. Denis.

**CATINEAU-LAROCHE**, PIERRE MARIE ST-BASTIEN, a French functionary and lexicographer, born at Saint-Brieuc, March 25, 1772, died May 22, 1828. He studied at Poitiers, and emigrated to St. Domingo, where he published a journal, *L'ami de la paix et de l'union*. He was sentenced to death for the opinions which he advocated, but, by the timely assistance of the agents of the king of France, succeeded in escaping to Cape Haytien (then called Cape François), where he alone, of 17 of his countrymen, was saved from the massacre which broke out in that city. He now visited the United States and England, and on his return to Paris, in 1797, composed several dictionaries. His printing office having been destroyed by fire, the government employed him in various public capacities. Once more he visited the United States, and on his return, in 1819, he was commissioned to go to Guiana, and study the di-

mate and resources of that province. His notes on that country appeared in 1822.

**CATIONS**, electro-positive bodies, as hydrogen, the metals, &c., those which go to the cathode or negative pole of the battery, or are found on the positive side of the electrolyte. (See **CATHODE**, **ELECTRODYNAMICS**.) Anions is the name of the electro-negative bodies, or those which go to the anode or positive pole.

**CATLIN**, **GEORGE**, an American artist known by his travels and residence among the Indian tribes of the west, was born in Wyoming Valley, Penn. His father was a lawyer, and George studied law in Connecticut, and practised for 2 years. Afterward he devoted himself to painting in Philadelphia, without any previous instruction. Some Indians arriving on a delegation in the city, he was struck with their appearance, and determining to visit their homes, he started from St. Louis in 1832, in a steamer called the "Yellowstone," being greatly assisted by Mr. Choteau, one of the owners of the boat. After a passage of 8 months, he reached the mouth of the Yellowstone river, where he was left. He visited about 48 tribes, numbering in the aggregate 400,000 souls, and collected much information concerning their habits and character. He also visited Florida and Arkansas. His letters were published in 2 vols. 8vo, with illustrations (New York, 1841).

**CATMANDOO**, or **KHATMANDOO**, a town of Nepal, regarded as the capital of that country, on the E. bank of the Bishnumutti river, 187 m. from Goruckpoor, 58 from Gorkha; lat. 27° 42' N., long. 85° 18' E.; pop. about 50,000. The streets are narrow, and the houses (of which there are about 5,000) present a mean appearance, not excepting that of the rajah, and are built of brick, though building stone abounds. Many of the temples, most of which are of wood, are of considerable elevation, and scattered in great numbers over the environs of the town. There are several temples of singularly picturesque appearance. An ancient temple, dedicated to Buddha, built of stone, consisting of 3 lofty pyramids with 2 square apartments, is much celebrated among the Tartars, and a great resort of pilgrims.

**CATNIP**, or **CATMINT**, the leaves of a perennial herbaceous plant, *nepeta cataria*, which is very common in the fields throughout the United States, though supposed to have been introduced from Europe. The plant possesses medicinal virtues, so that it is recognized in the pharmacopoeias, and is employed as a domestic remedy, but rarely, however, in regular practice. The leaves, which alone are used, are aromatic and somewhat bitter and pungent to the taste, and of disagreeable odor. Cats are said to eat them with great relish, and the general impression is that they derive benefit from their medicinal qualities. Catnip is administered in infusion. It acts as a tonic and excitant, and possibly as an antispasmodic and emmenagogue, being frequently given with

reference to such supposed qualities. Toothache is said to be sometimes cured by chewing the leaves.

**CATO**, the name of a celebrated family of the great Porcian house of Rome, several members of which attained high distinction as statesmen, writers, and soldiers; but none so conspicuously or deservedly as the two respectively known as **CENSORIUS** and **UTIENSIS**, both of which names were posthumous, not given by their contemporaries. **I. MARCUS PORCIUS CATO**, surnamed the Censor, and the Elder, was a native of Tusculum; his family was plebeian and poor, nor had acquired any note until the actions of this man gave to it nobility and renown. His birth bears date from the year 234 B. C., and at his father's death he inherited a small farm and cottage in the Sabine country, closely adjoining a similar estate of the patriotic and rustic Marcus Curius Dentatus, with whom he was on terms of intimacy from his early youth, and probably from him he copied some of that austerity of character and carelessness of the graces of life for which he afterward became famous. In 219 B. C. began the second Punic war, which may be regarded as a 17 years' duel between Hannibal and Rome. This called out the young plebeian, at the earliest age at which it was admissible to bear arms, that is to say in his 17th year, from his Sabine farm to the service of his country. The battle of Cannæ, fought on its own territory, within comparatively a few miles of its gates, was the greatest defeat and disaster which a sovereign city ever underwent without succumbing to the victor. But Rome was only the sterner and more steadfast after her unparalleled defeat, and was nerved only to greater exertion by her loss. In the year following the battle, the same in which Cato first buckled on his armor, the city of Rome, out of a population which, at the last military census, had numbered only in all 270,218 citizens, had 70,000 soldiers, beside seamen, under arms, or something above  $\frac{1}{2}$  part of all her male inhabitants. Fabius Maximus was dictator, and under him Cato first saw service at the siege of Capua. During the whole of the 2d Punic war, he was actively employed, and five years later was present, under the same general, at the taking of Tarentum; on which occasion he is said to have formed his first acquaintance with Nearchus, the Pythagorean philosopher, from whom he learned the principles and tenets of a system, the practices of which he had adopted long before. After the termination of the war, he was induced by the representations of a rich Roman, Valerius Flaccus, who had property in the same neighborhood, to abandon his farm, on which he had hitherto lived among his slaves, laboring at their head by day, and at sunset feeding at the same board with them on the coarsest fare, practising the severest austerity, and priding himself on the rude simplicity which he mistook for the essence, instead of one of the external

forms, of virtue. Going to Rome, he began to practice at the bar, having already been accustomed to act as counsel for himself and his neighbors in the small borough towns of the Sabines, and soon acquired some distinction, as much by the integrity of his life and the purity of his morals as by his forensic abilities or eloquence. At the age of 30 he was sent as military tribune into Sicily, and thence as quaestor with the army of Scipio which carried the war into Africa. In the course of this war began his enmity against the family of the Scipios, which he never abandoned during his life, and which was the cause of the least creditable actions of his whole career. On his return to Rome, he accused his late commander of extravagance and luxury; and, though he was defeated, obtained praise for the public spirit and high moral sense which he was thought to display, when it seems far more probable that he was actuated by party animosity, and a one-sided adherence to old notions. Being sent, 5 years afterward, in the capacity of praetor, to Sardinia, he in that office distinguished himself by his honest, unselfish, and unoppressive conduct toward the provincials. On the island he became acquainted with the poet Ennius, a Calabrian by birth, who was serving with the contingent of that district, from whom he learned the Greek tongue, and by whom he was accompanied on his return to the capital of the republic. In 195 B. C. he was elected consul, together with his friend Valerius Flaccus, and made himself notorious rather than famous by his violent opposition to the repeal of the Oppian law, a sumptuary enactment restricting the expenses of women, which had been passed during the public distresses caused by Hannibal's occupation of Italy, and which had served the purpose for which it was intended, and was now properly rescinded. On the expiration of his consular term, during which he conducted a war which had broken out in some revolted districts of Spain to a successful close, and obtained a triumph for his conduct in the same, although not without being accused of perfidy and cruelty, he followed Sempronius, the consul of the ensuing year, into Thrace, where the war against Philip II. of Macedon was yet in progress, in quality of his lieutenant. Three years later than this, the war against Antiochus broke out, and he was employed in forcing the passes of Thermopylae, under M. Acilius Glabrio, the consul of the year 191 B. C., in which action he greatly distinguished himself. The consul attributed this victory, which saved the Roman army and compelled the Syrians to evacuate Greece, entirely to Cato, whom he embraced at the head of his army, telling him that neither he nor the Roman people could adequately reward his services of that day, and afterward sent to Rome as bearer of despatches with the tidings of victory. Seven years after this success, he was elected censor, 184 B. C., in spite of the strenuous opposition of the patricians, who dreaded, it is

generally said, his severe morals, in consequence of the spread of Asiatic luxury and the relaxation of the antique code of austere and pristine virtue. His conduct, neither at this time nor subsequently, is clear from the reproach of factious bitterness, and of personal prejudices and dialikes. He degraded Lucius Scipio, by taking from him his horse at the equestrian census; expelled Manilius from the senate, for kissing his wife at what he considered an untimely occasion; and procured an order for the dismissal of Carneades and his colleagues of the new academy from Rome, lest by the introduction of Greek learning they should corrupt the martial morals of the youth of Rome. More objectionable still was his after conduct, when he seems to have constituted himself public prosecutor against the nobles in general, and the Scipios in particular. It was on his accusation that Scipio Africanus, the conqueror of Hannibal, was banished from the country which he had saved, and that Scipio Asiaticus would have been imprisoned in a dungeon but for the interposition of Tiberius Gracchus, his political opponent. His whole life was embroiled in accusing others and being accused himself, having to stand his trial 50 times, the last at the age of 85 years, when he complained that it was a hard thing for a man to have to defend himself before the men of an age different from that in which one has himself lived. He was in all cases acquitted; but the number of the accusations against him shows the pugnacious and aggressive character of his mind, and the state of constant civil warfare in which he lived with the most considerable citizens of his time, and against the natural advance of society. His last public employment was an embassy for the reconciliation of the Carthaginians with Masinissa, king of Numidia; on his return from which he adopted his settled idea of the necessity of destroying the rival republic. From that day forth it became his habit, whatever question was in debate before the senate, when voting on it, in the affirmative or negative, to add the words: "I vote, moreover, that Carthage be destroyed." His death took place about 149 B. C. The frugality and severe economy of Cato in some sort resembled that of Dr. Franklin, as it was connected with a profound respect for the possession and acquisition of wealth in a utilitarian point of view, although the Roman was opposed to its expenditure in any of the humanizing arts or appliances of social life. He was a large slave-breeder and slave-dealer; and the measure of his humanity may be estimated by his advice to farmers in one of his agricultural treatises, "to sell worn-out iron implements, old slaves, sick slaves, and other odds and ends, which are of no further use on the farm." Cato was, in addition to his other pursuits, a voluminous writer, although but few of his works have come down to our time. His work on agriculture (*De Re Rustica*) has come down to us apparently in a mutilated

state. It consists merely of a series of dry rules for the use of farmers, expressed with rude brevity, and without systematic arrangement. The best edition of it is contained in Gesner's *Rei Rusticæ Scriptores*. He left a hundred and fifty orations, extant, although neglected, in Cicero's time; a work on military discipline, some of which is incorporated into the writings of Vegetius; 7 books of history and antiquities, entitled *Origines*, which have unhappily perished; beside a book of epistolary questions, a book of apophthegms, and a formula of morals. Cato appears to have been a stern, hard-headed, obstinate, nearly one-ideaed man, with a strong sense of duty, and a strong desire to do what was right, accompanied with an inability to understand that any thing could be right unless it coincided exactly with his own prejudices. He had no refinement, and therefore hated, and would, if he could, have prevented all refinement, both of mind and body. He saw the advance of corruption growing with the growth of the state; and therefore, hating corruption, and seeing no other mode of arresting its progress, would have arrested all progress.

II. MARCUS PORCIUS CATO, the son of the preceding, by his first wife, distinguished himself in the battle of Pydna, against Perseus, king of Macedon, under Paulus Æmilius, whose daughter, Tertia, he subsequently married. He died a few years afterward, while serving as prætor. III. PORCIUS CATO SALONINUS, or SALONTANUS, the second son of the censor by his second wife, who was the daughter of one Salonius. This man had been his secretary, and was still attached to his household when the marriage took place. He, like his half-brother Marcus, died while in the exercise of the office of prætor, leaving one son. IV. MARCUS PORCIUS CATO, who was elected consul, together with Quintus Marcius Rex, in the year of Rome 586, 117 B. C., and died while in office. He was remarkable after his death only, and then as the father of the most famous of the name and lineage, surnamed Uticensis. V. MARCUS PORCIUS CATO, surnamed Uticensis, from the place of his death, born 95 B. C., died 46 B. C. the great-grandson of the censor. Shortly after his birth he lost both his parents, and was educated by Livius Drusus, his maternal uncle. It is told that on one occasion, his preceptor Sarpedon being in the habit of taking him, while a boy, to visit at the house of Sylla, who had been a friend of his father, Cato seeing the bloodshed of the conscriptions going on around him, he asked his tutor for a sword that he might slay the tyrant. The first public appearance of Cato was on the occasion of an attempt of the tribunes to remove a certain pillar from the Porcian basilica, which was in the way of their seats. Cato resisted, with the eloquence and energy peculiar to his house, a motion which offended the pride of his family, since the basilica in question had been erected by his great-grandfather, the censor. Of the further events of the question we are not informed, but

it appears that the young Cato prevailed, and that his ancestor's column was retained, to the discomfiture of the tribunes. His first military command was that of tribune of the soldiers in Macedon; but he had served as a private legionary in the campaign against Spartacus, in which his half-brother Cæpio was a tribune, and had been offered a prize of valor by Gallus the prætor, which he declined. During his service in Macedon he was summoned to Ænos in Thrace to attend the deathbed of his half-brother Cæpio, to whom he was fondly attached; and after the expiration of his military term, he travelled in Asia, whence he brought back with him Athenodorus, the Stoic philosopher, having adopted the tenets of that school, and pushed its practices to the extreme of their austerity. He was elected city quæstor after his return, and conducted himself with integrity so unusual in that office of responsibility in that corrupt age, that on the close of his term of service, the people escorted him home in a sort of civic triumph. At this time he had obtained credit for such uncompromising and austere morality, that it is related of him that, during the celebration of the feast of Flora, the most licentious of all the Roman festivals, the people hesitated to call on the female dancers, as was usual at a certain stage of the proceedings, to throw off their tunics and dance naked, until Cato should have left the circus. This fact, related by Valerius Maximus, whether true or not, is equally conclusive and characteristic of the received opinion of the man. In the conspiracy of Catiline, Cato strongly supported the aristocratic and conservative party of the state, against the conspirators. He earnestly promoted the election of Cicero as consul, at that crisis, and when elected sustained him with all his accustomed weight and power. After the flight of Catiline himself, and the arrest of the other conspirators, when Caius Julius Cæsar had spoken so eloquently and plausibly against the capital punishment of the traitors, which undoubtedly was forbidden by the Porcian and Valerian laws, as to bring over M. Junius Silanus, the consul elect, and many other leading senators to his opinion, it was Cato who, by a speech the tenor of which and its general argument, if not its actual wording, are preserved in Sallust's history of the conspiracy, confirmed the determination of the senate, and procured the death of the men, not as citizens but as enemies of the state and parricides of the republic. It certainly appears that the crisis justified the means adopted to suppress it, and that had less vigorous measures been taken, it would have been too late to punish when the crimes could no longer be prevented. He was the first who, on the suppression of the plot, hailed Cicero as "father of his country." On the usurpation of what is usually called the first triumvirate, that of Crassus, Pompey, and Cæsar, being opposed to their proceedings, he was sent into a sort of honorable exile as governor of the isle of Cyprus, and at the end of his service paid



above 7,000 talents of silver into the public treasury, returning as poor as he was on assuming office. He still continued to oppose the acts of the triumvirate, until, on the occurrence of the rupture between Pompey and Cæsar, he, together with Cicero, espoused the party of the former, which was undoubtedly the party of the old constitutional republic, and adhered to it with the stern determination which was the attribute of his family and name, until he believed that all was lost. He was not present at the battle of Pharsalia, having been left in command of Dyrrachium to guard the military chest and magazines; but on hearing the result of that disastrous day, he embarked his troops in the squadron under his orders and sailed to Coreyra, where he offered the command to Cicero. By him it was declined, when Cato, sailing to Cyrene, where he hoped to meet Pompey, heard of his murder on the seacoast of Egypt, and united his forces with those of Scipio, Pompey's father-in-law, Labienus, Varus, and the Mauritanian prince Juba, at Utica, near the modern Tunis, of which town he undertook the defence; while his colleagues, contrary to his advice—for he counselled them to protract the war—marched out and offered battle to the Cæsareans, at Thapsus. As might have been expected, and as Cato did expect, they were completely defeated, and the relics of their army which escaped from the field were so entirely dispirited that they refused to defend the city. On perceiving the impossibility of holding out, Cato now sent off all his friends by sea, advising them to join Sextus Pompey, who was still carrying on the war resolutely in Spain; and then, according to the philosophy of the Stoics, determined not to survive the fortunes of the party to which he was attached, and which, in fact, by his impatience, he largely contributed to ruin. He supped calmly, nothing doubting that the false pride which urged him to suicide was a serene and noble virtue; passed the evening in reading the "Phædo" of Plato, a treatise on the immortality of the soul, and then gave himself a wound of which, though it was not in the first instance mortal, he afterward died, tearing off the bandages with which his friends had endeavored to stanch the bleeding, and expiring from loss of blood. The true reason of this unphilosophical death, which, as such deaths usually do, turned out in the event to be a premature and ruinous dereliction of duty, was simply that Cato was too impatient to struggle to the end, and yielded to the first reverse of fortune; and that, even at the worst, he was too proud to owe his life to the clemency of Cæsar. Had he joined Sextus Pompey and his partisans in Spain, taking into consideration the events which followed, the long duration and ability of their defence, and the mere accident which turned the victory against them at Munda, it is more than doubtful whether his firmness, his virtue, and the weight of his name might not have carried the day, even against the fortunes of Cæsar. The

bad example of his death lived after him, infected his party, and being, by the false philosophy of the day, extolled as a proof of noble fortitude, instead of being denounced as a piece of cowardly impatience, was followed by Cæsius and Brutus, who threw away the cause of the republic before the words of Antony and Octavius, as Cato had done before them at the feet of Cæsar. VI. MÆCIVS PORCIUS CATO, the son of the preceding. He was spared by Cæsar, led a somewhat dissolute life, but died worthy his name and lineage at Philippi, the last of his race.—There were 2 other Catos, not connected with this family, VALERIUS, a distinguished grammarian, in the time of Sylla; and DIONYSIUS, a writer of the latter Roman empire, supposed to be a contemporary of Commodus and Septimius Severus, who wrote the *Disticha de Moribus*, which has been confounded with the *Carmen de Moribus* of the elder Cato; but they are worthy of no more than a passing notice to prevent confusion. There was yet another, LUCIUS, of the Porcian house, who was consul, and was killed fighting in the Marsic war, in the year 89 B. C. But he has little to give him note except what is here stated, which he owed probably to his name as a Porcius and a Cato.

CATOPTRICS, that part of optics which treats of reflected light.

CATOPTROMANCY, among the ancients, a species of divination by the mirror. Pausanias says that before the temple of Ceres at Patras there was a fountain, and an oracle very truthful, not for all events, but to the sick only. The sick person let down a mirror suspended by a thread till its base touched the surface of the water. Then, looking in the mirror, he saw the presage of death or recovery, according as the face appeared fresh and healthy or of a ghastly aspect. Another method of using the mirror was to place it behind a boy or girl's head, whose eyes were bandaged, and to decide by the visions which the person should fancy himself to see.

CATRAIL, DIVIDING-FENCE, or PICTS-WORRITCH. This singular name is applied to some ruins in the counties of Selkirk and Roxburgh, Scotland. They consist of the remains of a fosse and double rampart, relieved at intervals by round forts or towers, and are supposed to have formed in ancient times a line of defence raised by the Britons against their Saxon invaders. They extend from one mile west of Galashiels southward to Peel-Fall, and cover a space from 20 to 24 feet in width.

CATROU, FRANÇOIS, a French writer, born in Paris, Dec. 28, 1659, died Oct. 18, 1737. After officiating as a preacher, he was employed as editor of the *Journal de Trévoux*, a paper devoted to the interests of the order of Jesuits, to which he belonged. Among his works are a translation of Virgil, with critical and historical annotations, a history of the Mogul empire, a history of fanaticism, and an extensive Roman history, which has been translated into many foreign languages.

**OATS, JACOB**, a statesman and poet of Holland, born at Brouwershaven, in Zealand, Nov. 10, 1677, died at his rural retreat, Zorgvliet, near the Hague, Sept. 12, 1660. He studied at Leyden, Orleans, and Paris, and on his return to his native land published some successful poems. The end of the peace ended also his fortune and retirement, his possessions being submerged by water, or devastated by armies. In 1627 he was ambassador to England, and in 1686 grand pensioner of Holland, but in 1648 devoted himself again to literature. The disagreements between England and Holland during the protectorate of Cromwell caused his return to England as ambassador in 1652. He is one of the fathers of Dutch literature, and a new edition of his works, in 19 vols., appeared in Amsterdam in 1790-1800, a German translation of part of them having been published at Hamburg in 1710-1717. A monument was dedicated to him at Ghent in 1829.

**OAT'S EYE**, a semi-transparent variety of quartz penetrated by fibres of asbestos. It is commonly of a greenish gray color, though sometimes yellow, red, or brown. When polished, it reflects a pearly light resembling the pupil in the eye of a cat.

**OATSKILL**, the capital of Greene co., N. Y., is situated on the W. side of the Hudson river, about 111 m. from New York; pop. of the township in 1855, 5,710; of the village, 2,520. There are 5 churches, a court-house, a jail, and 2 newspaper offices. A ferry crosses the river, connecting with the railroad on the E. bank.

**OATSKILL MOUNTAINS**, a group of the Appalachian chain, on the W. side of the Hudson river, lying mostly in Greene co., N. Y. Their E. base is 7 or 8 m. distant from the village of Catskill. These mountains range parallel with the river only for about 12 m., spurs from their N. and S. terminations turning respectively N. W. and W., and giving to the group a very different form from that of the parallel ranges of the Appalachians, as seen in Pennsylvania. It differs from these also in assuming more of the Alpine character of peaks considerably elevated above the general summits. It resembles them in the precipitous slopes toward the E., and the gentler declivities, which are lost in the high lands on the W. side. Its geological structure is almost a repetition of that of the main Alleghany ridge throughout Pennsylvania, the same formations succeeding in the same order from the E. base to the summit, and giving to it, even in a more marked degree than is there witnessed, the terraced outline due to the alternation of groups of strata, that are easily worn away, and that powerfully resist denuding forces. Along its E. base the strata of the old red sandstone formation are seen dipping in toward the central axis. These are succeeded by the gray slaty sandstones of hard texture, which make up the most precipitous slopes, except those of the highest summits, which are capped by the conglomerate of white quartz pebbles. This is

the floor of the coal formation. Upon the Alleghany mountain it forms the highest knobs, which present their vertical fronts to the E., and slope away to the W. The dip in this direction being there steeper than the declivity of the mountain, the coal beds find a place above the conglomerate; but upon the high peaks of the Catskills this rock lies too horizontally for higher strata to appear, and a descent to lower levels in a W. direction only brings to view again the same formations met with on the E. side. Thus for want of 100 feet perhaps of greater elevation the Catskills miss the lowest coal beds. Even in the midst of the strata of the conglomerate its carboniferous character is seen by the black shales here and there pinched among its massive blocks, and by seams of anthracite of a few inches in thickness contorted into strange forms. These, before their real relations were understood, led to vain hopes and futile explorations to discover workable beds of coal in the hard sandstones of these summits. But it is now well understood that the Catskills can never claim regard for the value of their mineral productions. Their chief interest lies in the variety and beauty of their scenery. In a field of very limited area, easy of access and soon explored, they present a multitude of picturesque objects, which have long made them a favorite resort of artists and of those who find pleasure in the wild haunts of the mountains. The traveller upon the river is struck by their quiet grandeur and more imposing appearance than that of any other scenery along the Hudson; or, if so fortunate as to view them from the high lands, a few miles E. of the river, when the sun is descending behind their summits and gilding them with its parting rays, he may witness most beautiful displays of colors, and purple tints reflected into the atmosphere from the mountain sides, such as before, seen only upon canvas, he regarded as the exaggerations of the painter. From the village of Catskill a stage road of 12 miles leads to the "Mountain House," a conspicuous hotel, perched upon one of the terraces of the mountain at an elevation of 2,500 feet above the river. Here the traveller finds a cool and quiet retreat from the heat and bustle of cities, and a convenient starting point for his explorations of the mountains. Their features of especial interest are the high summits, which afford extensive views of the fine country around, of the Hudson river, visible with all the towns upon its banks from the Highlands to Albany, and of the mountains of Vermont, Massachusetts, and Connecticut, in the distant eastern horizon. The sunrise, as seen from these summits, or even from the windows of the hotel which look toward the east, presents a spectacle of such magnificence that it claims the first regards. The twin lakes nestled beside each other in their mountain bed are soon reached; and their outlet conducts to what are perhaps the most striking features of the Catskills,

the cascades of the mountain streams, and the deep gorges or "cloves" through which these find their way to the lower lands. The 2 highest summits are called Round Top and High Peak, the elevation of which above the sea, according to the barometrical measurements of Capt. Partridge, is about 3,800 feet. The clove of the Catterskill, or Kaaterskill, which commences a mile west from the little lake, lies between these and Round Top, the latter being on the S. and the lakes on the N. side. High Peak is 6 m. distant from the head of the clove, and is reached from thence only by a foot-path. The clove (meaning that of the Catterskill), is a remarkable ravine of 5 m. in length. At its head the rivulet from the lakes meets another branch from the N., and their united waters flow with increasing swiftness to a point where, as described by Cooper in the "Pioneer," the mountain divides like the cleft foot of a deer, leaving a deep hollow for the brook to tumble into. The first perpendicular descent is here about 120 feet over a projecting shelf of sandstone. Other falls and precipitous descents succeed below, till in 100 rods the total difference of elevation is estimated at 400 feet. In the winter season the upper fall becomes encased in a hollow column of blue ice, which reflects in the rays of the sun the brilliant colors of the prism. Below the falls the sides of the gorge rise in a succession of walls of rock to the height of 300 feet or more. Other falls are met with by following the stream down toward the Hudson, till 2 m. above the village of Catskill the waters are discharged into the stream of this name. The gorge called the Stony clove is 6 m. W. from the head of that just described, in a portion of the group called the Shandaken mountains. It is only 1½ m. long. The clove of the Plattekill is 5 m. to the S., beyond the Round Top and High Peak. Its scenery possesses the same wild character of deep ravines and tumbling torrents as the Catterskill. Numerous side streams are seen descending the steep mountain on its S. side from an altitude of 2,000 feet, in cascades—sometimes concealed by the forest, and then flashing to light through the evergreen foliage, leaping from ledge to ledge till they mingle their waters with the Plattekill. Where the stream first falls into the clove it is said to descend in successive falls 1,000 feet in a few hundred yards; and, as stated by others, 2,500 in 2 m. These streams which flow down the E. slopes of the mountains soon find their way into the Hudson. On the W. side the drainage is into the Schohariekill, which runs northward and falls into the Mohawk 50 m. above its junction with the Hudson. These streams, particularly among the falls near their source, abound with the fine speckled trout, which fish are also taken in the lakes already noticed, and in the few others that are met with about the mountains. The forest growth near the foot of the mountains is black and white oak,

with a variety of other trees interspersed, as hickory, chestnut, butternut, and several species of pine. Cedars and swamp ash are found in the swamps. The hard-wood growth of maple, beech, and birch is met with upon the better soils up the mountain sides, while hemlock, spruce, and the balsam fir occupy the more barren and rocky places, and shade with their dark, evergreen foliage the currents of water, whether these flow upon the summit levels or in the deep chasms of the cloves. The valleys beyond the E. ridge contain extensive forests of hemlock, with the beech, birch, and wild cherry tree intermixed. The abundance of the hemlock has led to the establishment of many tanneries about the mountains, and the gathering of its bark, together with getting down the more valuable kinds of timber, has been the only employment furnished by the resources of these mountains to the population thinly scattered among their recesses.

CATSUP, or CATCHUP, a condiment prepared from mushrooms, tomatoes, or the rinds of green walnuts. The substance is well macerated for several days in water, saturated with salt. The liquor drained off is simmered as long as scum rises to the surface. It is then seasoned with ginger, allspice, pepper, cloves, and boiled gently for half an hour; when cold, it should be closely bottled up, and left to stand for some months or a year before using. Care should be taken to boil it in vessels lined with tin or enamelled; for it is rendered poisonous by being boiled in copper. Much of the article sold in England is found to be of this character; and it is very probable that copper may be detected in the article sold in our shops. At all events, it is of most uncertain composition, and it is likely to consist of very different materials from those of which it purports to be made.

CATTARAUGUS, a co. in the W. S. W. part of N. Y.; area about 1,250 sq. m.; pop. in 1855, 39,530. It borders on Pennsylvania, and is partly bounded on the N. by Cattaraugus creek. The surface is hilly, but there are few mountains of considerable altitude. The soil is rich and productive, yielding good crops of grain, and affording excellent pasturage. The productions in 1855 were 79,000 bushels of wheat, 309,762 of Indian corn, 697,670 of oats, 300,246 of potatoes, 1,770 pounds of tobacco, 1,957,183 of butter, 1,717,484 of cheese, and 62,847 tons of hay. There were 20 grist mills, 169 sawmills, 15 tanneries, 1 brewery, 4 furnaces, 1 machine shop, 1 woollen factory, 61 churches, 242 school-houses, and 6 newspaper offices. The Alleghany river and the numerous creeks which flow through the county furnish motive-power. Bog-iron ore, peat, marl, manganese, and sulphur are found in different places; salt springs have been discovered, and petroleum springs exist in the E. part of the county. It was formed from a portion of Genesee co. in 1808, and during the last few years has increased very rapidly. Cattle and lumber are the principal exports, the trans-

portation of which is greatly facilitated by the N. Y. and Erie railroad, which traverses the county and by the Genesee valley canal, which extends from Rochester to Olean. Capital, Ellicottville.

**CATTARO** (Slav. *Kotor*), one of the 4 circles of the Austrian kingdom of Dalmatia, surrounded by the Adriatic, the Herzegovina, and Montenegro; area about 600 sq. m.; pop. 80,900.

—**CATTARO**, the capital of the circle, is charmingly situated at the foot of the Montenegro mountains, and at the S. E. extremity of the gulf of Cattaro; lat.  $42^{\circ} 25' N.$ , long.  $18^{\circ} 46' E.$  The town was almost entirely destroyed by the earthquakes of 1563 and 1677, and the population has dwindled down to 3,000 or 4,000. The streets are narrow, but the town is strongly fortified, and the port was made a naval depot in Aug. 1854. The best ships of Dalmatia are constructed along the coast of Cattaro, but the harbor of the town, although one of the best in the Adriatic, is little frequented by shipping. Cattaro, however, takes a fair share in the Dalmatian imports and exports, which amounted in 1855, the former to \$3,350,000, and the latter to \$2,500,000. The principal articles of trade are wine, oil, figs, wool, silk, honey, wax, tallow, smoked meat, dried fish, butter, eggs, cheese, and charcoal. Outside the E. gate of the town is the bazaar, which is supplied with provisions by the Montenegrins, who cross the mountain ridge to bring them to market. The trade of Cattaro is carried on by tribes. The Dobrota tribe trade with Trieste, and are frugal and industrious. The Perastro tribe trade with Venice. The Erzagno tribe are noted for their love of finery. The Ricano tribe are excellent traders, but rather given to sharp practice. Beside these, there are several other tribes of traders. The principal buildings are the cathedral, a collegiate church, 17 other Roman Catholic churches, 2 Greek churches, 6 convents, a hospital, a gymnasium, the residences of the governor and the bishop.—In the middle ages Cattaro was a prosperous republic. In 1420 it submitted to the Venetians; in 1797 it was annexed to Austria; in 1805, by the treaty of Presburg, it was incorporated into the French kingdom of Italy, but did not pass into the possession of the French until 1807, having been occupied by the Russians in the interval. Finally, in 1814 it reverted again to Austria. In 1849 Cattaro organized an independent government, but in Jan. 1850, was brought back under the sway of Austria.—The gulf of Cattaro, or *Bocche de Cattaro*, the Rhizonic gulf of antiquity, is renowned for the beauty of its scenery. The capital of Montenegro, Cettigne, is only 5 hours distant from Cattaro. The weekly Austrian steamer makes the voyage from Ragusa to Cattaro in about 6 hours. The popular language is the Herzegovina dialect of the Slavonian, but Italian is the language of the educated classes, and used in the transaction of public affairs. The majority of the population consists of descendants of the ancient Slavonians,

who invaded the country in the 7th century; of Italians, of Bosnian Greeks, and Servian Morlaks, with a small sprinkling of Germans, Jews, Greeks, and gypsies. Roman Catholicism is the established religion; about  $\frac{1}{2}$  of the inhabitants, however, profess the Greek faith. National schools of a superior class have been established at Cattaro, independently of the schools attached to the convents.

**CATTEGAT**, or **KATTEGAT**, a large strait lying between Sweden and Jutland, communicating with the North sea through the Skager Rack on the N., and with the Baltic through the Sound and the Great and Little Belts on the S. Length 150 m.; breadth in the central part about 90 m. It is difficult of navigation, being not only shallow toward the shores and irregular in depth, but obstructed by several sand banks, one of which lies in the middle of the channel. The herring fishery is carried on extensively in its waters. The chief islands are Lasöe, Anholt, and Samsöe. On the Kobber ground in the Cattegat, there is a light-ship with 3 lights.

**CATTERMOLE**, GEORGE, an English artist, born in 1800, at Dickleburgh, Norfolk, best known as a delineator in water colors, although of late years he has worked chiefly in oil. Cattermole occupies a field in modern art almost entirely his own. He places on canvas the romance of history. Into architectural designs of an elaborate character he introduces groups which tell the story. His cathedral interiors are remarkable for effects produced by striking contrasts of light and shade. Scenes from the feudal ages and the times of the English civil wars are his favorite themes. These permit him a variety of ornamentation and warm coloring. His most celebrated pictures are: "Luther before the Diet of Spire," "Raleigh witnessing the Death of Essex," and the "Skirmish on the Bridge." He has painted innumerable interiors of church and castle, together with designs illustrative of Scott's novels, Shakespeare's plays, the times of the English cavaliers, &c. Mr. Cattermole, who resides in London, now seldom places his works on exhibition. His pictures bear high prices in England.

**CATTI**, or **CHATTI**, an ancient German people, not very well known to the Romans, who never subdued them, although they made several incursions into their territory and slaughtered women and children. It is scarcely possible to arrive at any thing satisfactory concerning even the country which they inhabited, so irreconcilable are the contradictions. Cæsar only knew that they lived beyond the Ubii, whose seat was about Cologne; and that they were divided, inland, from the Cherusci by a wood which he calls Bacenis. In one place, we are told that they dwelt N. E. of Mount Taunus, still known by the same name, which occupies the abrupt angle of the Rhine between Boppard and Mentz, among the head waters of the Eder and Weser; that their capital was Mattium,

now Marburg, on the Lahn, and that another of their towns was Castellum Cattorum, now Hesse Cassel, on the Fulda. In another we find them on the river Lippe in the bishopric of Paderborn, a full degree to the N. of Marburg. Lastly, we find it distinctly stated by Tacitus, in his "Germany" (80, 81, and 82), that their country lay between the Rhine and Danube, extending from the Black Forest, on the S., to what were called the *Decumates Agri*, a tract of land which paid tithe to the Romans, and lay along the latter river, to the northward. To make the various statements agree, their territory must have extended over more than 6° of latitude, including Hesse Cassel on the N., and Baden on the S. According to Tacitus, who perfectly describes their character, habits, and manner of life, they were far less barbarous, so far at least as regards their military tactics, than the other German tribes. "They divided the day," he says, "into watches; fortified their positions by night; held fortune of war among the chances, valor among the certainties, of life; and, what is most unusual, they trusted more in the skill of their general than in the valor of their army, a thing which belongs in general," he adds, "to the Roman discipline only. All their force lies in their infantry, whom, beside their arms, they load with tools and provisions; so that, while other tribes go out prepared for battle, the Catti march in a condition for a campaign." They did not allow their young men to cut their hair or trim their beards, until they had slain an enemy; and all youths of unusual strength and size were compelled to wear an iron ring, after a certain age, as a mark of dishonor and reproach until they should have gained the right to remove it by slaying a man in battle. They had no individual property of land or houses, no care for tomorrow. Every one was fed, wherever he chanced to be at the moment; equally careless of their own, and lavish of that of others, whether it were property or life, they persisted thus until extreme old age deprived them of such robust and hardy vigor.

**CATTLE**, a class of domestic animals. In its primary sense, horses and asses are included in the term, as well as oxen, cows, sheep, goats, and perhaps swine. In England, beasts of the ox species are more precisely described as black cattle, or neat cattle. In the United States, the term cattle is usually applied to horned animals alone. Like that of many other species of animals now domesticated, as the sheep, the dog, and our common barn-yard poultry, the origin of the ox cannot be traced distinctly to any type now existing in a state of nature. The distinctive characteristics of the common domestic cattle are smooth unwrinkled horns, growing sideways at their origin, and directed upward, or in some breeds downward and forward, with a semi-lunar curve. The forehead of the common ox is flat, longer than it is broad, and has the round horns placed at the two extremities of a

projecting horizontal line, separating the front from the occiput; but the horns themselves differ so widely in the different breeds, which have been the result of thousands of years of domestication, that no specific character can be founded upon them. In color, like all highly cultivated domestic animals, they run through all hues and shades, from the plain blacks, whites, browns, reds, duns, grays, and blues, to every variety of piebald, mottled, spotted, flecked or brindled; the colors being in some degree distinctive of the various select breeds. Thus the Devonshires run to self-colored red and light tan or dun, the Durhams to dark red piebald, with the white portions sometimes flecked or sanded, though this is rather an Ayrshire mark; the Alderneys to light red, or yellow, and white; the Ayrshires to roan and piebald; and the small Scottish kyloes, or mountain oxen, to self-colored blacks, reds, and brindles. In Calabria there is still a large breed of snow-white cattle, formerly in great request for sacrificial purposes, which has descended unchanged from classic ages; and every traveller in Italy knows the large, gentle, gray and mouse-colored oxen of the Campagna, with their soft, languid eyes. In Hungary there is a remarkable breed of gray or dark blue cattle; a bull of which breed was imported some years since into the United States by the late Roswell Colt, of Paterson, N. J. They have wide-spreading horns and coarse flesh, but fatten easily. In the East, there exist many singular and distinct species, the most remarkable of which is, perhaps, the celebrated sacred or Brahminic bull; a heavy, indolent, phlegmatic animal, with short reflected horns, large pendulous ears, and an enormous hump and dewlap of solid fatty matter, which never, even under the heat of an Indian sun, is known to "melt, thaw, and resolve itself into a dew." Its coat is smooth, and sleeker than even that of the common cattle, while its form approaches nearer to that of the bison. Beside this, they have the huge, mottled, almost hairless-headed buffalo, both wild and half domesticated, with its great, erect, crescent-shaped horns, of 18 inches girth at the root, and 4 or 5 feet measure round the exterior curve; the beautiful, little, hump-backed, gentle zebu; that strange animal, the yak, or grunting ox of Thibet, with a tail like that of a horse; and probably many other varieties, yet imperfectly known and undescribed.—It was formerly supposed that domestic cattle were descended from the wild European bison, *bos urus*; but Cuvier has shown that this idea is wholly erroneous, by pointing out permanent characteristic distinctions in the osseous structure, particularly in the formation of the skull and insertion of the horns. It appears that there has been generally overlooked by naturalists a race of perfectly wild cattle peculiar to the British isles, which, formerly known as the wild bull of the great Caledonian forest, seems to have ranged all the woody northern regions of the island. They were

of medium size, compactly built, invariably of a dingy, cream-colored white, with jet black horns and hoofs, and the upper half of the ears either black or dull red. They are represented as having formerly had manes; but that characteristic is lost, although their indomitable spirit and desperate ferocity remain unchanged. Within a few years three herds of these cattle were in existence; one in the chase of Ohillingham castle, the property of the earl of Tankerville, in Northumberland; one in that of the duke of Hamilton, at Hamilton castle, in Scotland; and one at Drumlanrig, in Dumfriesshire. Lord Tankerville's herd were reared; those of the duke of Hamilton had the black ears which are considered characteristic of the pure Scottish race. Although kept in confinement within vast enclosed chases, these cattle were perfectly wild, tameless, and savage. They would hold no connection with other cattle, more than the red deer will with the fallow; they would not brook the approach of man, and evinced their original wild nature by the pertinacity with which the cows concealed their calves in deep brakes of fern or underwood, and resisted any approach to their lair. It is said even that, if discovered, they would themselves destroy their offspring, as the bulls were known to do their disabled or superannuated companions. The structural characteristics of these cattle differ in no respect from those of the domestic ox; their invariable self-color is a certain evidence of the purity and antiquity of their breed, as it is a strong proof that they are not the descendants of tame animals relapsed into a savage state; since such—as is the case with the South American herds—long retain their variegated hues, the tokens of domestication and servitude. —Of the cattle of continental Europe, the Polish or Ukraine oxen are large, strong, and fatten readily, the flesh being succulent and well flavored. The cows are shy, not fit for the dairy; color light gray, seldom black or white; oxen docile at work. On the plains of Jutland, Holstein, and Schleswig, there is a fine breed with small, crooked horns, supposed to be allied to the Friesland and Holderness breed; colors various, mouse or fawn interspersed with white being most common. Red cows of this breed are seldom seen. The cows are good milkers in moderate pastures. The oxen fatten well when grazed or stall-fed at the proper age, being fine in horn and bone, wide in loin, but not as hardy and strong for labor as the Hungarian breed. Nearer the Alps the cattle are stronger and more active. The largest are among the Swiss. The Freyburg race have very rich pastures in the vicinity of Greyers (Gruyères). The cows most prized are large and wide in the flank, strong in the horn, short and strong in bone; they show a prominence about the root of the tail which would be considered a blemish by short-horn breeders. Their milk is rich in pasture, or when stall-fed on clover or lucern; the oxen are good work-

ers, but heavy and slow, and fatten well. In the Jura there is a small, active mountain breed, that keep well on little food; they are of a light red color; oxen active and strong for their size, drawing by the horns. They are not profitable for stall-feeding, but good for mountain cottagers, as they climb like goats, feeding on the patches of pasture. The Norman breed give character to all the cattle in the north of France, except near the eastern frontier; they are light red, sometimes spotted with white; horns short, set well out, and turned up with a black tip; legs fine and slender; hips high; thighs thin; good milkers, with rich milk. They are usually fed on thin pastures, along roads and the balks which divide fields. In Normandy the pastures are better, and the cattle larger. The Alderneys or Jerseys, in France, are supposed to be a smaller variety of the Norman, with shorter horns and more deer-like forms. This breed is very docile, having been for generations accustomed to be tethered in fields, along the roads, or in yards. They are found in gentlemen's parks and pleasure-grounds in England. A large number have been brought to the United States, but they are not considered so profitable as some other breeds. The Italian breed is most remarkable for immense length of horn. No pains is expended on this breed except in northern Italy, where the Parmesan cheese is made. The Italian cattle resemble the Swiss.—In England the breeding of cattle has been carried to the greatest perfection. The "Commentaries" of Cæsar state that the British in his time had great numbers of cattle, though of no great bulk or beauty. The island being divided into many petty sovereignties, cattle were the safest kind of property, as they could be driven away from danger. When more peaceful times returned, cattle were neglected for other productions, their size and number diminished, and not until within the last 150 years was any considerable effort made to improve them. The breeds in England are as various as the districts they inhabit, or the fancies of the breeders. A curious classification by the horns has obtained, having been found useful. The long-horns, originally from Lancashire, were much improved by Mr. Bakewell, of Leicestershire, and are now found in the midland counties. The short-horns first appeared in Lincolnshire and the northern counties, but are now found in most parts of the island. The middle-horns, a valuable and beautiful breed, came from the north of Devon, the east of Sussex, Herefordshire, and Gloucestershire. The crumpled horn is found in Alderney on the south coast, and in almost every park in small numbers. The hornless or polled cattle were first derived from Galloway, and now prevail in Suffolk and Norfolk. Which is the original breed of all has been a bone of contention among English breeders. It is held by some that the long-horns are of Irish extraction; that the short-horns were produced by the efforts of breeders; while the polled though

found in certain places from time immemorial, are supposed to be accidental; and that to the middle-horns must therefore be ascribed the honor of being the original breed. As the natives of Britain retired before invaders, they drove their cattle to the fastnesses of north Devon and Cornwall, the mountain regions of Wales, the wealds of Sussex; and there the cattle have been the same from time immemorial, while on the eastern coast the cattle became a mongrel breed, conforming themselves to pasture and climate. Observation proves that the cattle in Devonshire, Sussex, Wales, and Scotland, are essentially the same—middle-horned, not great milkers, active workers, easy to fatten; all showing traces of likeness to one breed, however changed by soil, climate, and time.—The earliest importation of cattle to America was made by Columbus in 1493; he brought a bull and several cows. Others were brought by succeeding Spanish settlers, from which the wild cattle of Texas and South America must have originated. The Portuguese took cattle to Newfoundland about 1558, but no trace of them now exists. Norman cattle were brought to Canada about 1600. In 1611, Sir Thomas Gates brought from Devonshire and Hertfordshire 100 head to Jamestown. In 1624, Francis Winslow brought 8 heifers and a bull to Massachusetts. At this period no fixed breeds, as such, were known in England. In the United States there is now a class of native cattle, arising from a mixture of various breeds imported by the early settlers, who, for the want of barns, and from habits established in a milder climate, allowed their cattle to suffer severely; many perished, the survivors degenerating in size and quality. As agriculture advanced and settlers became more prosperous, the cattle were improved; and there are to be found in different districts native cattle varying with the richness of soil, salubrity of climate, and care of breeders. The English breeds, gaining celebrity, attracted the attention of enterprising breeders here, who commenced importing the Durhams, Devons, Ayrshires, Herefords, and Alderneys, with a few Galloways and some long-horns, and occasionally a few Scotch cattle. These cattle, imported at great cost, and not inured to our climate and rough treatment, prospered only in the best situations, and for a long period attracted little attention from ordinary farmers. At present there are many places where the pure breeds are propagated, each having its advocates; while farmers who make money from milk, butter, and cheese, stoutly maintain the value of native cattle and their crosses with the best breeds. There are, however, few neighborhoods where traces of imported blood may not be found; indeed, the high prices for cattle and their products which have prevailed since 1850 have done much to stimulate breeders to improvement. The short-horn or Durham is becoming the favorite breed in the West, where beef is the leading object of the cultivator. The model of this breed forms

a solid rectangle, or parallelopiped, when the head and legs are removed, leaving no unfilled space and much solid meat with little offal. The famous herd of Mr. Samuel Thorne, of Dutchess co., N. Y., contains 70 of the finest animals gathered from English herds, and from the choice importations of Col. Lewis G. Morris and Mr. Becar, who have long been known as breeders of this admirable stock. These animals cost from \$300 to \$5,000 per head, beside the cost of importation. Mr. Thorne's purchase of Mr. Morris's herd amounted to \$40,000, and the offspring are eagerly sought for by improving farmers. Of this breed "Allen's American Short-Horn Herd Book" says: "They are, as a race, good milkers, remarkable in the richness of its quality, and the quantity is frequently surprising. For beef, they are unrivalled. Their capacity to accumulate flesh is enormous, and they feed with a kindliness and thrift never witnessed in our native breeds. In milk, instances have been frequent in which they have given 24 to 36 quarts a day, on grass pasture only, for weeks together; yielding 10 to 15 lbs. of butter per week. Cows have slaughtered 1,200 to 1,500 lbs. neat weight, with extraordinary proof; and bullocks upward of 2,500 lbs." The short-horn crosses with native stock are much prized, forming good milkers, easy keepers, and profitable animals for beef, and in the hands of ordinary farmers prove better than the pure breed of short-horns. About 1835 some Ayrshires were imported, and this breed has ever since borne in the United States a high character for milk, yoke, and shambles. The Hereford breed does not seem to find general favor. A large herd of Alderneys, of the most symmetrical proportions for that breed, was imported a few years since by Mr. R. L. Colt, of Paterson, N. J., and seem admirably adapted to light thin pastures. Though their milk is very rich, the quantity is small. They are poor for beef, and not famous as workers; some breeders in the eastern states, however, believe them to be very profitable for butter and cheese. The long-horns have been sparingly imported, and do not find favor. The Sussex are better liked, though few have been introduced, while their supposed congeners, the Devons, are held by many intelligent men to be superior to the Durhams for all the southern and most of the older states. Being an original breed, and without cross or admixture of blood, they have sustained a superior capability of improvement among the best breeders wherever they have been bred with care. The hide is soft and mellow, indicating an aptitude to fatten, the bones small, and in color, grace, and elegance of carriage, they possess a superiority over all other British cattle. The descendants of imported stock bring a high price, and a thoroughbred cow can rarely be purchased. Davy's "Herd Book" gives a full account of this breed of cattle. The little Kerry cow of Ireland, termed the "poor man's cow," has been recommended for poorer lands in mountainous regions, but as yet no steps have been taken to introduce her

there.—Cattle have many complaints, yet generally they are exempt from great mortality. Occasionally the "milk sickness" appears in some districts W. of the Alleghanies, when the animal sickens and dies, giving the peculiar disease to all who partake of her milk or flesh. It is supposed to originate from the *rhus toxicodendron* or poison ivy. The remedy is feeding large quantities of Indian corn. The horn distemper and hoof ail sometimes prevail extensively, and about cities, where the cattle are closely confined and badly fed, they become ulcerated and otherwise diseased. No class of animals are so free from maladies as neat cattle when well treated.—Good pasturage, good hay, grain, roots, and water, and airy stables, with sufficient exercise, are necessary to maintain good health in cattle or to improve their condition. Variety of food is essential, and the feeding of roots in winter is particularly necessary, as they replace the succulent grass of summer. The practice of "soiling" in summer is strongly advocated in England, and has found favor with those who have fairly tried it in the United States. The cattle are kept in cool, clean stables, and green rye, oats, corn sown broadcast, lucern, clover, sorghum, &c., are out and carried to them. These green substances should be allowed to wilt and heat slightly before being used; the animals being turned out for 3 or 4 hours in a shaded field without grass. A lump of rock salt should be put in each manger. It is recommended that on large farms stables for summer should be placed in the centre of a 40 acre field, to render it convenient to get food to them, and leave the manures near where they are required. Cattle afford the means of keeping up the fertility of a farm, and generally a cattle district, grows richer every year, while a grain district without the introduction of foreign manures at great cost, grows poorer.—The weekly average consumption of cattle in the city of New York for 1855 was: beeves 8,565, calves 922, cows 238; total for the year, beeves 185,574, calves 47,969, cows 12,110. The annual consumption of London was estimated, at the period of the last English census of 1851: bullocks 240,000 head, calves, 28,000 hd., sheep 1,700,000 hd., pigs 85,000 hd. The consumption of Paris in 1856 was about 187,000,000 lbs. of all kinds of meat, showing an increase of 6,000,000 lbs. on the preceding year.

CATTYWAR, or KATTYWAR, a province comprising the whole of the Indian peninsula of Guzerat, bounded on the N. and N. W. by the Runn and the gulf of Outch; on the S. and S. W. by the Arabian sea; and on the E. by the British district Ahmedabad and the gulf of Cambay; between lat. 20° 42' and 28° 10' N., long. 69° 5' and 72° 14' E.; area 19,850 sq. m.; pop. 1,468,900. The principal towns are Amreli, Choteyla, Koondla, Buggura, and Oheetal. The principal product is cotton. The grains chiefly cultivated are wheat, maize, and millet. The sugar cane is grown extensively, but is only made to produce molasses or *geor*. The Cattywar

horse, once celebrated, has of late years deteriorated. A breed of kine, called *desam*, and buffaloes are much valued, but not the camel, of which there are only few, and those very small. The soil is sandy and not fertile, but numerous streams and wells afford ample means of irrigation, all the rivers taking their rise in the most central part of the province. Toward the S. some of the hills are over 1,000 feet high. Deep ravines and caverns are very numerous, and afford safe retreats against attack. A locality of wooded hills called the Gir is haunted by wild animals of the most ferocious kind, and noted for its deadly climate. The ravages of migratory rats produced such a terrible famine in 1814, that this year has since been called the rat year. The province is divided into 10 districts, which are again subdivided into the separate possessions of 216 Hindoo chiefs, some of whom are tributary to Great Britain, others to the Guicowar. The Cattywar tribute figured in the revenue of the presidency of Bombay to the extent of £56,105 in 1856. The total revenue of the Hindoo chiefs is estimated at about £450,000. The military force of the chiefs consists of 12,000 men, 4,000 horse and 8,000 foot.

CATULLUS, CAIUS VALERIUS, a Roman poet, born in Verona, 87 B. C.; the time of his death is variously estimated between 57 and 40 B. C. He belonged to an ancient and noble family; his father was connected with Julius Cæsar by the bond of hospitality, being a *hospes*, a tie very sacred among the Romans. The son came to Rome by the influence of Manlius, and became acquainted with Nepos, Cicero, and other great men of the age; possessing a moderate fortune, he did not enter upon public life, but dwelt in retirement at Rome and at his villa near Tibur. He is the earliest Latin lyric poet of any importance. The first attempts of the Romans in lyric poetry may be traced to table, triumphal, and the Salian songs; the Roman lyric may be considered an imitation of the Greek, although possessing peculiar merits of its own. When the Roman character became changed by Christianity, lyric poets became very numerous; this change forms an important epoch in the history of our religion, as some of the most beautiful songs of the Catholic church may be traced, both in their text and music, to this time. We have 116 poems of Catullus, mostly short ones, and without arrangement by subjects; a few belong strictly to lyric poetry, some are elegiac, but most are epigrammatic. From his imitation of the Greeks, Catullus has been called *doctus*, but, next to Lucretius, he possesses the most originality; there is in his style a certain air of antiquity which the Romans greatly admired. The text of Catullus seems to have been early corrupted; all MSS. are derived from one source, and that an imperfect one. There are several poems of unknown authorship, which are ascribed to Catullus; the elder Pliny mentions *De Inocantamentis*. *Ciris* and *Perovigilium Veneris* have been attributed to him, but the latter is now generally believed to



have been written by Florus in the 2d century. In his epigrammatic poems the Roman spirit prevails, and in the elegiac the Greek. Most of his epigrams are pleasant light impromptus, full of irony and satire, of various forms and on a great variety of subjects; they contain many obscure passages and some allusions offensive to modern ears; they are composed in 13 different metres. The elegies are imitations of the Greek, especially of Callimachus and Sappho; they exhibit, however, great vigor of language, and less frivolity than his epigrams; some of the best are the 58d, 65th, and 66th. A good edition of his works is that of Sillig, Göttingen, 1828.

CAUB (Germ. *Kab*), a German town, in the duchy of Nassau, parish of St. Goarshausen, on the Rhine, which was here crossed by Blücher with his army, Jan. 1, 1814. The ruins of the castle of Gutenfels rise on a steep rock above the town, and in the middle of the river between Caub and Bacharach is the Leyenfels, a rock upon which is the famous castle called the Old Pfalz or the Pfalzgrafenstein, supposed to have been built as a toll house, and spoken of in the legends of the Rhine as the place where in former times the princesses of the palatinate used to be delivered of their children. The inhabitants are engaged in navigation and in trade in wine, and more actively in slate, of which there are extensive quarries in the lateral valleys. Pop. about 1,500.

CAUCA, a state of New Granada, bounded N. by the Caribbean sea, W. by the Pacific, S. by Ecuador, and E. by the provinces Magdalena and Cundinamarca, divided into the 4 districts of Popayan, Ohoco, Buenaventura, and Pasto. Area 68,800 sq. m. Pop. in 1853, 49,000 Caucasian whites, 25,000 civilized Indians, 38,000 negroes, 14,600 quadroons, 88,049 mestizos, 114,300 mulattoes, 2,300 zambas; total, 276,249. The principal town is Popayan, near the 2 famous volcanoes of Purace and Sotara. The principal mountains are the Paramo de Guanacas, the Quindiu, Pasto, Sindagua, all branches of the Cordilleras de los Andes. The principal productions of the state are gold and platinum. The soil is very fertile, and cattle and sheep abound. Cocoa, cotton, tobacco, coffee, and various kinds of grain and rice, are also produced. The sea of Papas in this state is the source of the Magdalena river. Among the rivers is the Pusambio, which springs from the volcano Purace, the hot acid waters of which are poisonous and produces a dangerous disease of the eyes; the Atrato, which is united with the San Juan by the canal of Raspadura in this state; and, beside other smaller rivers, the Cauca, which rises in that part of the Andes called Paramo de Guanacas, flows through the provinces of Popayan, Antioquia, and Carthagena, and after a course of 600 miles between the central and W. Cordillera of the Andes, falls into the Magdalena, between the small towns of Pinto and Tacaloa. Cali, Toro, and Antioquia are the principal towns on its banks, and the Nechi is its largest tributary. The valley of the Cauca

is one of the richest, most fertile, and most populous districts of South America.

CAUCASIAN RACE, one of the 5 varieties into which mankind was divided by Blumenbach. It is also one of the 8 varieties in the classification of Cuvier, one of the 15 species in that of Bory de St. Vincent, and appears in other classifications. According to Blumenbach it is the central and original race from which the others have been produced. Its characteristics are a white complexion, reddish cheeks, nut-brown hair, round head, oval face with regular features, even brow, thin and regularly curved nose, small mouth, perpendicular front teeth, and full round chin. It embraces the most powerful and enlightened nations of the world, and its general external appearance is such that Meiners recognized but 2 races of men, the Caucasian or beautiful, and the Mongolian or ugly. To it belong all the ancient and modern Europeans, excepting the Finnish tribes, the Indians, Persians, Phœnicians, Hebrews, Arabs, and other tribes of W. Asia, and the Egyptians, Abyssinians, Guanches, and other inhabitants of N. Africa.

CAUCASUS, a general name given to the region and the chain of mountains therein which stretch between the Black and Caspian seas, dividing the Russian provinces of Ciscaucasia from Transcaucasia, and forming part of the boundary between Europe and Asia. An outline of the country would represent a system of round-topped mountains (exhibiting few of those peaks which distinguish the Alpine and other chains), their sides seamed with deep but fertile valleys, descending to the steppes or plains which stretch N. into the country of the Cossacks, and S. to Asia Minor. The whole region known as Caucasian is comprised within lines extending from the mouth of the Koor on the Caspian, in lat. 39°, crossing the 40th and 41st parallels in a N. E. direction to the mouth of the Rion, or Phasis, on the Black sea, lat. 42° N., and from the mouth of the Terek on the Caspian, lat. 44°, to the embouchure of the Kooban, on the Black sea, in lat. 45°; its extreme points being, on the N. W., in long. 37°, and on the S. E., in long. 50°. Its area is roughly estimated at 56,000 sq. m. The territory N. of the Caucasian chain was formerly known as the Russian province or government of Caucasus, also as Ciscaucasia, but it now forms the Russian government of Astrakhan. The vast tract of country S. of the mountains forms the present government of Transcaucasia. The Caucasus proper consists of the mountain provinces which Russia has so long sought to conquer. It commences in a line of cliffs fronting on the Caspian sea, at the peninsula of Aptheron, whence the main chain stretches in a N. W. direction to the shores of the Black sea, a distance of 700 m., and terminates in the promontory where the sea of Azof unites with the Black sea at the Russian fortress of Anapa. From the main chain other ranges branch N. and S., giving the hill country a width of from 65 to 150 m. The

principal of these subsidiary chains are Elvend and Elbrooz, both on the N. The principal summits are Mount Elbrooz, the highest point of the range, variously estimated at 16,500 and 18,000 feet; Mquinvari or Kasbek, 14,500 feet; Chat-Elbrooz, on the confines of Daghestan, 14,000 feet; Djouar-Vahé, estimated at 8,000; and Goudah, 7,000 feet. The passage of these mountains is effected through defiles, some of which have a historic celebrity. Such are the Caucasian, now called the Dariel pass, the Albanian or Sarmatic pass in Daghestan, the Caspian pass near Teheran, and the Iberian, now called the Schaourapé pass. Only one road is practicable for carriages, namely, the pass from Mozdok to Tiflis, by the valley of the Terek. The mountains of the Caucasus are either flat or round-topped. The geological structure of the greater portion is of secondary formation, interspersed with volcanic rocks. The summits and central ridge are granitic; on each side the granite has schistose mountains joining it, and these are succeeded by calcareous hills whose bases are covered by sandy downs. The mountains are more abrupt on their north face; southward they descend by a succession of terraces. Snow rests on summits over 11,000 feet in altitude throughout the year. The glaciers are but of limited extent, and no active volcanoes are known. Earthquakes are not infrequent. The region is scantily supplied with running streams. There are no lakes, if we except a small sheet of water lying to the S. of Mount Khoki. Twelve watersheds or channels are counted, 6 on the N. slope, and 6 on the S. The principal rivers on the northward are the Terek, flowing E. to the Caspian, and the Kooban, W. to the Black sea. On the S. the Koor in like manner flows E., and the Rion W.—The country of the Caucasus possesses every variety of climate, from the arid heats of the valley to the cold of perpetual snow. Vegetation in the habitable districts is luxuriant. Forests of the finest timber clothe the hills almost to the snow line. Grain will grow at an elevation of 7,000 feet. In the central belt the ordinary species of fruits produce well. Dates, pomegranates, and figs ripen in the valleys. Rice, flax, tobacco, and indigo are sure crops. The culture of sugar-cane, silk, and cotton has been introduced into some localities of the Russian districts. Among the productions peculiar to the Caucasus are a species of cochineal insect; a hard-wood tree, called, locally, *outahelia*, with wood of a rose color, suitable for cabinet work; also the Caucasian goat, celebrated for the value of its hair; and a wild animal of the feline species, called by the natives *chaus*. The horses of the Caucasus bear a high character for endurance and docility. Wild cattle are found in the forests. Wolves, bears, jackals, lynxes, with the minor fur-bearing animals, are numerous. The wool of the ordinary breeds of sheep is long and fine. Almost every species of birds known to the latitude are found here. The following table presents an

approximate estimate of the average value of the principal products annually exported from the Caucasus:

Wheat.....	\$10,000,000
Barley.....	2,500,000
Buckwheat.....	800,000
Maize.....	800,000
Cattle.....	16,000,000
Saffron.....	75,000
Madder.....	65,000
Wine.....	2,800,000
Brandy.....	800,000
Silk.....	80,000
Cotton.....	150,000
Total.....	\$32,970,000

Few minerals have been discovered; gold appears to be totally wanting; iron, copper, salt-petre, and lead are found, the latter in considerable quantity.—The Caucasians are generally a bold and restless people, hunters and guerrillas from choice, shepherds and agriculturists only from necessity. Although hospitable, they are jealous and revengeful. Like all mountaineers, they are endowed with an indomitable love of their country. They live in villages built of stone, around a citadel which they garrison in time of danger. Until recently their youth of both sexes were raised for sale in the slave markets of Constantinople; but that traffic has been suppressed. Their political organization was formerly a loose sort of republicanism, under the nominal presidency of a hereditary prince. Recent events have materially modified that form. Literature they have none. Their religion is an offshoot of Mohammedanism, corrupted from many sources. Of late, Shamyl, the Circassian chieftain, has instituted a new creed, of which the principal tenet is obedience to the divine communications received through himself. Probably the total population of the Caucasian region is not short of 2,500,000.—Ancient history makes frequent mention of this region. Here Prometheus was chained. Deucalion, Pyrrha, and the Argonauts, Sesostris and the Egyptians, the Scythians, Mithridates, Pompey, and Trajan, are associated with its history. The Arabs, Mongols, Tartars, and Turkomans successively ravaged the countries to its base. Russia and Persia then struggled for its possession, until, in 1813, the Russians became nominally possessed of it by successive treaties. For the past 20 years a constant war has been carried on between the Caucasian mountaineers and the Russians. Since 1800, when Georgia was annexed to the empire of the czar, the Russians have been untiring in their efforts to reduce the mountain tribes, which form a barrier to their advance eastward. A desultory warfare of several years ended by the mountaineers being reduced to a condition nearly approaching to subjection. But in 1823 a new movement sprung up in the mountains. Mohammed, the Mollah, commenced against the Russians a campaign in Daghestan. A chieftain named Kasi-Mollah was soon recognized as the head of the movement, having for his aid Shamyl, then a young man, but who has since

become famous as the Circassians' chief. This chief, Kasi, kept up a brilliant resistance to the Russian power till 1831, when he was shut up in Himry. The Russians stormed the place, and gained possession of it only when the last of its defenders had perished; the chief himself was slain. Hamsad Bey next took the field, and devoted his first care to coercing into neutrality the disaffected tribes, but his career was cut short by assassination. The Mollah Mohammed being now dead, Shamil was elected his successor. From that day to this the war has been carried on with varying success, but has never flagged. The campaign of 1837 terminated by the capitulation of Shamil, who was besieged in Tilitla. During 1838 the Caucasians were employed in preparing themselves for future resistance, several of the disaffected tribes joining them. The passes of the mountains were fortified, and the strong position of Akulgo was put in readiness to stand a siege. In the succeeding year the Russians, under Gen. Grabbe, entered the territory, defeated the Caucasians, and drove them back upon Akulgo, which was finally taken after a blockade of 72 days, and 8 days' hand-to-hand fighting. The Caucasians once more nominally succumbed to the Russian power. In the next year, March, 1840, they again revolted. Having found European tactics ineffective in the previous campaign, they fell back on their old system of guerrilla warfare. Leaghistan and the Tchetchentse were formed into a military organization, which enabled them to throw their force on any point. Gen. Grabbe again attempted to penetrate into the mountains, but was compelled to retreat with much suffering to his army. The next attempt to conquer this brave people was made in 1845 by Prince Woronzoff, who bore the appointment of governor-general of the Russian Caucasian provinces. Woronzoff penetrated to Dargo, which he found in flames. The campaign being over, Woronzoff returned home. By his recommendation a new plan of action was introduced against the mountaineers. Hitherto the tactics had been to bring them to pitched battle, with the hope of breaking their strength at a single blow. Now the plan was to send detached columns against isolated spots, and wherever a footing was obtained, to erect a fort on it. Notwithstanding this, the Caucasians have been able to carry on offensive operations. In 1846 they swept the line of Russian forts, and returned to their mountains laden with plunder. In 1848 and 1850 they made similar expeditions, and in 1853 they took from the Russians several guns, and drove them back from 8 leagues of territory. During the Crimean war the Circassians refrained from taking a conspicuous part. They embraced the opportunity to consolidate their own resources for the renewed struggle with Russia, which they foresaw awaited them when the Crimean war should be over. The destruction by the allies of the Russian forts on the eastern coast of the Black sea was a fortunate circumstance for

the Caucasians, and of which they made good use. As soon as the war was over the Russians again turned their arms against them, and the struggle continues to the present hour. The whole territory allied to Shamil is divided into four provinces, each of which is administered by a lieutenant-general. Each province is subdivided into 5 districts, called Naibdoms, over each of which presides a Naib, who is required to maintain 800 horsemen. Prince Bariatinsky left Russia in Oct. 1856, to assume the functions of governor in the Caucasus.

CAUCASUS, INDIAN. See HINDOO-KOOL.

CAUCHY, AUGUSTIN LOUIS, a French mathematician, born in Paris, Aug. 21, 1789, died May 23, 1857. His father, the poet of Rouen, and keeper of the archives of the house of peers (born 1755, died 1847), gave him a careful education, and he early showed signs of a talent both for poetry and mathematics. Admitted in 1805 to the *école polytechnique*, he distinguished himself by the solution of difficult problems, and maintained the first rank in this school, and afterward in the *école des ponts et chaussées*. From the year 1813 down to 1846, he poured forth almost incessantly the riches of a mind singularly adapted to algebraic and mathematical research. Scarce a branch of mathematics, pure or applied, does not owe something to his labors. His fame will rest chiefly on his residual and his imaginary calculus. He was admitted to the academy in 1816, and about the same time appointed professor of mechanics in the polytechnic school. He published in 1811 "Lectures on Analysis;" in 1826, "Lectures on Differential Calculus;" and in 1828-'29, "Lectures on the Applications of the Infinitesimal Calculus to Geometry." The journals of the academy and several European mathematical journals contain numerous and valuable memoirs from his pen. He is highly honored in his native country both for his genius and the excellence of his private character; but his conscientious attachment to Bourbon legitimacy prevented him from taking the necessary oath of allegiance, by which alone he could retain the public offices which he held in 1830, or accept those offered him on subsequent occasions. In 1843, however, he was appointed to the chair of mathematical astronomy which was then instituted at the Paris university; but refusing to take the requisite oath of allegiance, he relinquished this post in June, 1852. His politico-religious writings testify both to his faith in legitimacy in politics, and in Roman Catholicism in religion. One of his most characteristic works of the kind is his poem *Charles V. en Espagne*, which was published in 1834.

CAUCUS, a word of American origin, employed in the United States to designate a part of the political machinery of the country, which, though unknown to its written constitutions and resting merely on usage, forms a marked feature of the American political system. The oldest written use of this word is probably in the following passage in John

Adams's diary, dated Boston, Feb. 1768: "This day learned that the caucus club meets at certain times in the garret of Tom Dawes, the adjutant of the Boston regiment. He has a large house, and he has a movable partition in his garret which he takes down, and the whole club meets in one room. There they smoke tobacco till you cannot see from one end of the garret to the other. There they drink flip, I suppose, and there they choose a moderator who puts questions to the vote regularly, and selectmen, overseers, collectors, wardens, firewards, and representatives are regularly chosen before they are chosen by the town. They send committees to wait on the merchants' club, and to propose and join in the choice of men and measures. Capt. Cunningham says they have often selected him to go to those caucuses," &c. Gordon, in the following passage of his "History of the American Revolution," under date of 1775—at which time he was minister of Roxbury near Boston, and very intimate with the political leaders of the day—traces back this practice to a much earlier date: "More than 50 years ago Mr. Samuel Adams's father and 20 others, one or two from the north end of the town where all the ship business is carried on, used to meet, make a caucus, and lay their plans for introducing certain persons into places of trust and power. When they had settled it, they reported and used each their particular influence with his own circle. He and his friends would furnish themselves with ballots, including the names of the parties fixed upon, which they distributed on the days of election. By acting in concert, together with a careful and extensive distribution of ballots, they generally carried the elections to their own mind. In like manner it was that Mr. S. Adams first became a representative for Boston." It has been plausibly conjectured that caucus is a corruption of calkers. Very likely the caucus club which met in Tom Dawes's garret was originally a mechanics' club, called, from the leading trade in it, the calkers' club, which name, with a variation, it still retained after it had passed into the hands of politicians. The change of government consequent on the revolution led, in the northern states especially, to a great increase in the number of elective offices, while the prevailing idea of the impropriety of self-nominations and of a personal canvass for votes made some nominating and canvassing machinery necessary. Meetings held for this purpose received the name of caucuses. These caucuses were no longer private clubs.—Soon after the adoption of the federal constitution, the people of the United States became divided into two strongly marked parties, the federalists and the republicans. Even the local elections of the smallest places speedily came to turn for the most part on this great national party division. Each party held in each election district its own caucus to nominate candidates. Public notice of the time and place was given, and every voter of the party was at liberty to attend; but

of course the attendance was chiefly composed of zealous politicians. A moderator and clerk being chosen, a nomination list was opened. Each person present nominated whom he pleased. Several copies of the list were made and distributed through the meeting, each person placing a mark against the candidate whom he proposed, and the candidate having the highest number of marks was declared the nominee. This method, however, was evidently inapplicable where the constituency was large or the district extensive, as was the case when state senators or representatives in congress were to be chosen. Hence the substitution of a representative caucus, delegates being appointed at meetings like that above described, held in case of cities and large towns in the wards, and in country districts in the townships. These elective caucuses commonly took to themselves the name of nominating conventions, and their introduction marks a third era in the development of the caucus system. A considerable period, however, elapsed before this convention system was applied to state or presidential nominations. The members of the state legislatures in the one case and of congress in the other—those of each party holding their own separate caucus—took upon themselves to make these nominations. At first these legislative and congressional caucuses were held privately, the result being gradually diffused among the local leaders of the party by private correspondence. Afterward, however, they came to be formally and avowedly held. Committees were appointed to look after the elections, and beside a state committee the legislative caucuses assumed the power of nominating the chairmen of the local county and district conventions. At length it began to be objected that in these legislative caucuses only those districts in which the party was in the majority were represented, and this and other causes led, between 1820 and 1830, to the substitution in New York and Pennsylvania of state conventions in their place—a custom since universally imitated. Congressional caucuses about the same time fell into disfavor. That held in 1823 to nominate a successor to Monroe was but slenderly attended; and its nomination was extensively disregarded, so that Mr. Crawford, its nominee, was behind both Jackson and Adams in the popular vote. At the presidential election of 1828, Adams became the candidate of one party and Jackson of the other, without any formal nomination. Indeed, it may be observed of the congressional caucuses, that so far as the presidency was concerned they all, except the last of which the nomination failed, did but select the candidate already designated by popular expectation. The congressional caucus system being exploded, the Jackson or democratic party held in 1832 a national nominating convention, each state being entitled to the same number of votes as in the presidential election, and similar conventions of that party have been held to nominate candidates for each succeeding presidential

term. The opposition, then known as whigs, adopted the same policy in 1837, and since that period all nominations for the presidency, by whatever party or fragment of party, have been made by a similar agency. The southern states, in which originally there were few elections by the people, except for the state legislatures and congress, and in which the English system of self-nomination and a personal canvass prevailed, long stood out against the caucus system. But as the choice of state governors and other state officers has been given to the people, this system has gradually worked its way, till it is now fairly established in all the states. The power of assembling these bodies rests with a committee appointed by the previous convention. Beside judging the qualifications of their own members, and nominating candidates, they assume the power of drawing up party creeds or platforms, as they are called, and of determining, in case of new and important questions, what position the party shall take. Though their authority, like that of the religious organizations of the United States, to which they bear a certain resemblance, is destitute of any legal sanction, yet it is rigorously upheld by the force of party feeling, especially in times of great party excitement, fidelity to regular nominations being zealously inculcated by caucus politicians, both as indispensable to success and as the greatest of political virtues. Membership of these conventions, when made an object of contest, is generally attained by superior adroitness and audacity. Gross frauds, and in some cases open violence, are resorted to, possession of the majority in the convention ordinarily carrying with it, as between the different cliques contending for its control, the leadership of the party. The caucus system is thus often converted into a contrivance for the distribution of offices among men more distinguished for intrigue than for talent, who, by combination and mutual support, and by serving each other's turns, are often raised to offices, and sometimes very high ones, for which, apart from a caucus nomination, they would hardly have been thought of as candidates.

CAUDEBEC, a French town on the Seine, department of Seine-Inférieure, 26 m. E. of Havre. Pop. 2,567. The principal edifice is the parish church, a celebrated Gothic building in the florid style of the 15th century. It was taken by the English in 1419, and by the Protestants in 1562. In 1592 it was besieged by Alexander Farnese, who received beneath its walls a fatal wound. Its industry was ruined by the revocation of the edict of Nantes in 1685.

CAUL (Lat. *caula*, a fold), a membrane which sometimes envelopes the head of a child when born. It is of interest only for the superstitious feelings with which it has long been regarded. The child that happened to be born with it was esteemed particularly fortunate; and the possession of it afterward, however obtained, was highly prized, as of a charm of great virtue.

The superstition is thought to have come from the East; and, according to Weston, in his "Moral Aphorisms from the Arabic," there are several words in that language for it. With the French, *être né coiffés* was an ancient proverb, indicative of the good fortune of the individual. The alchemists ascribed magical virtues to it; and, according to Gross, the health of the person born with it could, in after life, be judged of by its condition, whether dry and crisp, or relaxed and flaccid. Medicinal virtues are probably still imputed to it by the ignorant, as is the property of preserving the owner of it from drowning. It is consequently bought and sold occasionally at a high price, and advertisements of it are met with in foreign journals, and in one instance, in the year 1857, in a journal of New York. The purchasers are in general seafaring men.

CAULABAGH, or KAILABAGH, a town of the Punjab, in the Salt Range, 68 m. from Peshawar, lat. 33° 12' N., long. 71° 35' E. It is built on terraces out of the declivity of a hill near the river Indus, which waters the town. In the vicinity are large masses of pure rock salt, and a considerable trade is carried on in this article and in alum.

CAULAINCOURT, ARMAND AUGUSTIN LOUÏS, marquis of, and duke of Vicenza, a French general and diplomatist, born at Caulaincourt, department Aisne, Dec. 9, 1773, died in Paris, Feb. 19, 1827. He entered the army at an early age; being of noble birth he was deprived of his property at the revolution, and cast into prison, but was liberated; and by the interposition of Gen. Hoche reinstated in the army. After being attached to the Turkish embassy for 2 years, he distinguished himself in the campaign of 1800 under Moreau, and after the peace of Lunéville was sent by the first consul to congratulate the Russian emperor Alexander on his accession. On his return Napoleon attached him to his own staff. While he was superintending some operations on the Rhine the duke d'Enghien was arrested and shot, and suspicion hinted that Caulaincourt had a hand in his death. He accompanied Napoleon in his campaigns of 1805, '6, and '7; in the latter year being appointed minister to Russia, whence he returned in 1811. After the burning of Moscow Napoleon chose him as his travelling companion to France. He took a prominent part in the deliberations of the 2 chambers during the Hundred Days, and lived in retirement after the second restoration of the Bourbons.—AUGUSTE JEAN GABRIEL, brother of the preceding, born at Caulaincourt, Sept. 16, 1777, died Sept. 7, 1812. He served with distinction in the campaigns of the Rhine, Italy, and Spain, obtained the rank of brigadier-general, and commanded a division of cuirassiers in the expedition to Russia. He fell in the battle of Borodino, at the entrance of a redoubt which he had forced.

CAULIFLOWER (*brassica oleracea botrytis*, De Candolle), a cultivated plant of the cabbage

tribe. It has a compact rounded head of delicate flavor, standing on a stalk 18 to 26 inches in height, and surrounded by long leaves. The leaves are not closely packed as in the cabbage. It is more tender than the cabbage, and in transplanting should have a ball of earth lifted with the roots to secure a continuous growth. In the vicinity of New York 2 crops are raised in the kitchen garden in one season. If the early cauliflower does not come to perfection by the end of June, it will usually fail to head, from the excessive heat at that time. To obtain plants for this crop seeds should be sown in September in good soil, and in about 4 weeks transplanted to a cold frame, set 2 or 3 inches apart, and carefully protected by glass during the winter, being opened to the air only during warm days. In February they should be set into another frame, 8 to 12 inches apart, to prevent a spindling growth. They should be transplanted as early in the spring as possible, at a distance of 3 feet from each other, and well watered and frequently hoed during the dry weather. At the time of heading, the larger leaves may be broken over the head to protect it from the sun, and the waterings should be frequent. For a late crop the seeds are sown in an open bed in May, and the transplanting is in July. Those plants which do not head before frost may be removed to a warm shed or cellar, covered with coarse litter, and allowed to head during early winter.

CAURA, a river of Venezuela, formed by the junction of the Yurani, Erevato, Mareguare, and several of their tributaries. It unites with the Orinoco after a N. course of about 150 m.

CAURSINES, or CAORONT, also CAORSINI, Italian usurers in the middle ages, who were often driven out of the countries in which they resided, on account of their merciless exactions. They derived their name from Cahors, which was one of the head-quarters of the same class of persons in southern France.

CAUS, SALOMON DE, a French engineer, architect, and author, died about 1685. He was born probably at Dieppe, devoted himself with ardor to mathematics, making Archimedes, Vitruvius, and Euclid his favorite reading; went in 1612 to London, where he was attached to the prince of Wales, afterward Charles I.; lived from 1614 to 1620 at Heidelberg, at the court of the elector palatine Frederick V.; and returned to France in 1624, where he received the title of royal engineer and architect. He wrote several ingenious works, in one of which, entitled *Les raisons des forces mouvantes*, he speaks of the expansion and condensation of steam in a way naturally to suggest the alternate action of the piston and the principle of the steam engine; it has therefore been claimed that the marquis of Worcester borrowed from him the discovery of the properties of steam as a motive power.

CAUSE. Few words are more conspicuous in the discussions of philosophy than this, and few if any principles lie deeper in its foun-

dation than that which it has been used to denote. It would require a thorough review of the history of philosophy and of the various systems that have been taught, to give a satisfactory exposition of all the senses in which the word "cause" has been used, and of all the theories of causation; this is of course impossible in this place. The discussions of cause appear to have assumed a scientific form first with Aristotle (*"Posterior Analytics,"* ii., chap. xi.). Aristotle reckons 4 kinds of causes—efficient, final, material, and formal. The first or efficient, being the force, energy, or person by which any thing has been brought into being, is of necessity prior to the effect or thing produced; the second or final cause is the object for which a thing is produced, and does not really exist until after the effect, and is in some sense the effect of the effect. Material causes, as Aristotle says (*"Metaphysica,"* vii. 4), exist only in physical substances; as, for example, marble is the material cause of a statue, or in general that of which anything is made is its material cause, and the tools, machinery, &c., by which its specific form was given to it, are its formal cause. In a short time, however, these definitions came to have a more metaphysical meaning, and even Aristotle himself, in the *"Analytics,"* as cited, uses the words material and formal as denoting kinds of cause, in a sense much the same as they came to have afterward with the schoolmen of the middle ages. In this use the material cause is the *essentia* of the conception, and the formal cause is the *differentia*. Hence with them the definition of a thing is by means of its material and formal causes, that is, the *essentia* and *differentia* of its conception. In this view, to illustrate the uses of the word cause, the efficient cause of man would be his Creator; the material cause, in the physical sense, the carbon, oxygen, lime, &c., of which his body is composed—in the metaphysical sense, the properties common to animal life; the formal cause, in the physical sense, would be any instrument or means with which creation had been effected, if such there were—in the metaphysical sense, it would be the distinguishing characteristics of human nature; and the final cause, in the language of a well known theological formulæ, would be "to glorify God and enjoy Him forever." In reference to the material and formal causes, it is evident that the different senses of the word arose from a change in the real object contemplated. In the one case it was the outward visible object, the ontological reality; in the other, it was the conception of that reality; and hence the terms in modern use, "the matter of a conception," that is, those essential properties of the object by means of which it is cognized as existing, and which Dr. Wilson in his *"Logic,"* p. 209, proposes to call material properties, as being those on which demonstration is based. So, also, the formal cause of a conception can be only those properties by which its object, or objects, if it be the conception of a spe-

cies rather than of an individual, are distinguished from other individuals or species. These properties may be called formal with reference to the laws of induction. In this view of them, the material properties are a cause or ground of reality to certain others which are implied; thus, threeangledness would be a material property and so a material cause of a triangle, but the equality of the sum of its angles with two right angles would be an implied property, not obvious on the first conception of a triangle, but as necessary to its reality as the material property of threeangledness which necessitated it. So also canine teeth, for example, are a formal property of all the *carnivora*, and a carnivorous mode of life is the modal property, denoting the mode of life or being which a formal property necessitates, and of which it is in some sense of the word the cause. So, too, in regard to final cause, it may have a subjective and an objective meaning, a psychological and an ontological application; thus, the end attained or accomplished would be the final cause in the objective or ontological sense. In this sense alone does Aristotle appear to have used the word. But in some cases there is no ontological or objective end, no material or substantial result; and in that case the motive of the agent and his gratification have come to be called the final cause, though this is more properly, and generally in fact in modern times, called the moving cause. Swedenborg, however, and after him the Swedenborgians also, generally and perhaps exclusively use the words final cause or end in the metaphysical or subjective sense. That which was called efficient cause by Aristotle has since been distinguished into two classes. And even his definition seems to be somewhat vague, "that which first moves something," that out of or from which the force emanates that caused the motion; this definition is found to apply equally to two distinct forces, called in later times the efficient and the occasional cause. For example, in the explosion of gunpowder, the spark which ignites it would be called the cause of the explosion; but yet the spark is a cause in a very different sense from the expansive force of the gases, especially the nitrogen, which are consolidated in the powder. The gases would not explode without the spark, nor the spark cause an explosion without the gases, or in case it had fallen upon sand or onion seed; and yet both are included in Aristotle's definition. The importance of this distinction was first appreciated only in modern times, and since the more vigorous prosecution of the natural sciences in the inductive method. Cousin mentions, in his "Review of Locke's Essay on the Understanding," that the failure to recognize this distinction by that distinguished philosopher led to the most serious and fundamental error of his system, treating sensations as the efficient cause when in fact they are only the occasional cause of the ideas which we form of sensible objects. This

form of cause, that is, the occasional, is, as we have said, sometimes in reference to the motives of free agents called the moving cause (the agent himself being the efficient cause); and in the use of medical men especially, it is often called the exciting cause, that which puts a pre-existing agent or force into a state of activity. Then, from another point of view, we speak of first and second causes, and likewise of absolute cause, each of them varieties of efficient cause. Absolute cause is the uncaused cause, God alone. In Him there may have been final cause, hence in physics the doctrine of what is called teleology, or the science of final causes; and His own volitions would then be occasional causes. The absolute cause must of necessity be a first cause. But by a first cause we always mean an agent which acts with intelligence and from moral freedom, in distinction from one which, as do most if not all the objects in nature, mainly acts with the force which has been imparted to it. Thus, if one throws a ball against a wall, the ball itself is a cause of the indentation made, so also is the man who threw it. The former we call the second cause, the latter the first cause. This distinction arises from the fact that we refuse to recognize in mere matter any thing but inertia, any form or power to change itself from rest to motion, or vice versa from motion to rest; hence purely material objects have been very generally regarded as only secondary causes. Another distinction in causes arose among the schoolmen, by which they are called transient, permanent, and immanent causes; these 8 words stand for the 8 great theories of theism in reference to the creation and continuance of the material world. A good illustration of the difference is as follows: The man who in the night comes along and lights the street lamps is the transient cause of the light which is diffused through the streets; the gas or oil that burns is the permanent cause; and the ignition or process of burning itself is the immanent cause. From this it will be seen that transient and permanent causes may be efficient causes, while the immanent cause must be not only the efficient cause, but in the physical sense the material cause also. If, now, God is the immanent cause of the universe, we have pantheism, and nature itself is only God appearing as matter. This is the theory of Hegel and his followers, and in fact is common to all forms of pantheism and monism. If God is only the transient cause, then we have matter endowed with certain dynamic powers, and the universe capable of going on of itself, and we are prepared to deny, if we do not actually deny, the existence of a providence and moral government of the world; this is the Epicurean view, having been first propounded by Epicurus. The view which makes God the permanent cause would establish a relation between Him and the objects in the created universe which is best illustrated, perhaps, by the relation of a man to his own thoughts;

they are the creation of his own mind, and exist as long as that mental activity in which they had their origin continues, and no longer. In this view the objects of nature would be denied to have any substantial reality, and called merely phenomenal. This seems to be the view of Schelling and of Cousin, and has been expressly announced by Coleridge; each of these philosophers of course giving to the theory some modifications and peculiarities of his own. Second causes, also, are sometimes designated as immediate or remote; immediate denoting that antecedent of any effect which was the last in the order of time before it, whereas the remote cause was any one of the anterior secondary causes (and sometimes even the efficient cause is so called) on which the thoughts are fixed. In the light of the distinction between first and second causes, every object of thought, except the absolute cause and possibly an absolute effect, is conceived as both cause and effect; and so cause and effect, with the exception just made, are but alternate conceptions of the same thing. Any object, considered in reference to what preceded it, is an effect, and in reference to what follows it in the line of causation, is a cause. Then again, ontologically, causes are of 8 kinds: negative, substantial, and modal. A negative cause is an ontological unreality, which, however, may be denoted by either a positive or a negative term. Thus we say that cold congeals fluids, darkness makes the plants that grow in it to be white or without color; here cold and darkness are spoken of as causes, though in a scientific point of view they are regarded as mere absences of positive realities—heat and light being considered as real, cold the absence of heat, and darkness the absence of light. And in general, the absence of either an occasional or an efficient cause is itself spoken of as a cause of any event or result which would have been prevented if the cause itself had been present and active. The distinction between substantial and modal causes has reference to the fact that a cause to be real must be substantial, while its efficiency as a cause often depends upon its being in a certain condition. Thus, for illustration, when a man steps on a worm and crushes it to death, we say the step causes the worm's death. But the step is not a substance, it is only a mode; the foot caused the worm's death, but only by being in the mode of stepping. Hence the foot is the substantial cause, the step the modal. This distinction is based upon an idea in relation to causation of which we shall speak more fully soon, and which if it is received cannot fail to exert a great and very marked influence upon the whole of the teachings of metaphysical science.—Theories of causation are intimately connected with and dependent upon the theories of the origin of the idea of cause. Of these there are 4, which seem to be all that are possible. The first is the theory of innate ideas introduced by Plato, modified by Carneades, and

adopted by the realists generally in the medieval schools. The second is the theory first suggested by Leibnitz, and adopted by the modern idealists generally, from Kant to Cousin and Sir William Hamilton, who seem to have given to it a more minute exposition and a more preëminent place than it had occupied even in the writings of Leibnitz. According to this theory, certain ideas, and among them that of cause, which represent to the mind objects not cognizable by the senses, are the product of the mind itself acting spontaneously and according to the laws of its own constitution. The third theory is that of the sensationalist, who holds that all ideas are produced from the action of objects upon the senses. It has been objected to this theory that it leaves no room for the distinction between causation and mere antecedence; and Hume so taught, denying that our idea of cause implied anything more than a mere uniform or general antecedence of that which we call the cause of any event. This is regarded as a successful *reductio ad absurdum*, for it is certain that all men make a distinction between cause and mere antecedent. Nobody is content to use the words as mere synonyms. For example, a man eats his breakfast and is hungry at noon, he eats a dinner and is hungry at evening, takes his supper and rises hungry again in the morning; and yet no one ever supposes that the food is the cause of the hunger that follows the taking it, notwithstanding the uniformity with which the one phenomenon follows the other. To the view of Leibnitz and the idealists it is objected, that if the principle of causation, namely, that every effect must have a cause, is evolved from the idea of cause, and the idea of cause is the mere spontaneous product of the mind, then neither the idea nor the principle of causation can rise to a certainty above the mere subjective necessity of our thinking thus and so rather than otherwise, which is in fact Sir William Hamilton's view; that is, the principle itself rests rather upon the nature of the admitting mind than upon that of the admitted truth. In view of these objections, and on other grounds, Dr. Wilson has proposed a new theory of the whole subject. In the first place, he denies both the Platonic and Carneadean theories of innate ideas, and the Leibnitzian theory of their spontaneous production, and holds, in addition to Locke's theory of sensationalism, that we have a faculty of insight or intuition by which we cognize directly and immediately objects, properties, and relations invisible to sense-perception. In the second place, he holds that the word cause, as used in this connection, is an abstract term. It may be a concrete term indeed, as when we speak of the cause of any particular thing; but in that case it denotes only an alternate conception of some reality which we have cognized by other properties, and for which we have another name. But taking the word cause to be an abstract term in its ordinary use without the article, he says that it must denote either a property,



a relation, or a mode of existence in or by which we have cognized some reality, just as whiteness denotes a property by which we cognize snow for example, and life is a mode of existence in which we cognize certain bodies which hence we call living; or antecedence is a relation in and by which we cognize two objects as going the one before the other. Antecedence is the product of sense-perception, and common to man and brute. Cause is the product of direct intuition into the nature of the relation subsisting between the two—an intuition which sees that the one, the antecedent, not only precedes but is the ground and cause on which the existence of the consequent depends; this is what the animal does not see. And hence, as above said, since what we cognize we cognize in the concrete, and as a substantial reality, whether matter or spirit, whatever is truly a cause—that is, an efficient cause—must be substantial, and the mode at best can be only an occasional cause or condition of activity, but furnishing none of the forces of which the effect is the resultant. In this view, it is held that every effect must have a cause, and that the effect is therefore absolute proof of the existence of its cause—a cause which is both homogeneous and adequate—that is, the same in kind as the effect, and sufficient in quantity to produce the effect. Thus, heat is a cause homogeneous to fluidity, and 212° Fahrenheit sufficient in quantity to produce the boiling of water; whereas a much lower degree would be inadequate, and electricity (except as producing heat) would not be a cause homogeneous to the effect. The laws for the investigation of causes are reserved for consideration under the head of *INDUCTION*.—The question has been raised whether our ideas of causation imply the actual creation of any thing, or only a change in the form of its existence. At first, the idea of cause only includes the latter; for that is all that there is in the external phenomena from which we generalize our idea. And here again we encounter another peculiarity of the theories of causation, namely, the occasional cause of the idea of cause. It is commonly held that the idea of cause arises from seeing the changes that take place in outward nature. Maine de Biran held, on the contrary, that the idea doubtless first arose from observing in the phenomena of consciousness the fact of volition, in which we are conscious of the causal act of producing not only the volition or *visus* that immediately precedes the physical act, but also of producing that act itself. And Coleridge appears to think that the idea of causation is especially obtained from the consciousness of the activity and the products of our imaginations. In either of these views, the idea of causation would imply that in causation there might be the production of something out of nothing—from no preëxisting material. This view Sir William Hamilton denies. "We cannot conceive," says he, "either, on the one hand, nothing becoming something, or, on the other, something becoming nothing."

But as his Christian faith, to say nothing of his philosophy, would not allow him to hold to such a view as the utmost of causation, he taught that the principle itself which teaches that every effect must have a cause, is only a subjective necessity of the thinking agent, "a negative impotence" or utter inability of conceiving of any thing except as an effect which had some cause, both efficient and material (in the physical sense), preceding it. To this it is objected that we do indeed cognize and conceive of whatever is cognized or conceived as finite, as caused; and regarding it therefore as an effect, the mind does necessarily revert to its antecedent cause and ground; but that in our cognition or conception of the Infinite, the mind does not and cannot cognize Him as effect, and so does not and cannot ask for his cause, or suppose he had one. We might as well ask for the radius of a triangle, or the hypothenuse of an ellipse; the figures have no such parts, and the question implies that the person who puts it has not the conception of the triangle or the ellipse in his mind. And, accordingly, Sir William Hamilton denies that we have, or can have, any idea or conception of the infinite, the absolute, the unconditioned, or the uncaused, for he thinks that these are all but names and alternate conceptions for the same thing. We cannot examine Hamilton's doctrines on the subject in this place, but would merely suggest the inquiry whether that distinguished philosopher has not committed a great mistake, and supposed that it is the same thing for the object of the conception to be unconditioned, and for the conception itself to be unconditioned? No conception is unconditioned. If positive, it is limited in logical quantity, and conditioned by and so dependent upon the essentia and differentia which constitute its material cause. But can we infer from the fact that the conception of the Highest is limited and conditioned, that therefore either He must be conditioned or we can have no conception of Him? which last is Sir William's horn of the dilemma. The general doctrine therefore is that we have ideas or conceptions of the Infinite and absolute; that while they are conditioned He is not, and that never can the mind, with an adequate idea of Him, ask who or what caused Him. On the contrary, we recognize Him as having the ground of His being in Himself, so that the supposition of His non-existence is an absurdity, and in Him we find the cause of all substantial realities, and to Him all our investigations of causes tend, and in Him find their completion.

**CAUSEWAY**, or **CAUSEY**, an elevation of stones, stakes, and earth, which serves as a dry passage over wet marshy ground, or as a mole to keep the waters of a pond or river from overflowing. The word is derived from the French *chaussée*, which has a similar meaning.

**CAUSSIN DE PERCEVAL**, JEAN JACQUES ANTOINE, a French orientalist, born June 24,

1759, at Montdidier, died July 29, 1835. He published good editions of some Arabian works, among which were "Lokman's Fables" and the 8 first chapters of the "Koran;" various translations of an historical or scientific character, and interesting memoirs in the collection of the academy of inscriptions. —**ARMAND PIERRE**, son of the preceding, born in Paris in 1795, travelled in the East to perfect his knowledge of the Arabic. On his return to France in 1822, he was appointed professor of the common Arabian language, first in the royal school for oriental languages, then in the college of France. Beside an Arabic grammar and a revised edition of "Ellious Boethor's French and Arabic Dictionary," he has published a very important historical work, *Essai sur l'histoire des Arabes avant l'Islamisme, pendant l'époque de Mahomet et jusqu'à la réduction de toutes les tribus sous la loi musulmane*, 3 vols. 8vo., Paris, 1847, and several translations from the Turkish.

**CAUSTIC** (Gr. *καυσ*, to burn), a class of substances used for burning out diseased spots on the skin, and for creating artificial sores by means of which the system may be partially drained of its impurities. In cases of internal suppuration these are found very beneficial. The most common caustic employed is nitrate of silver or lunar caustic, being mild and effective. The other varieties are arsenic, blue vitriol, potash, and preparations of mercury. —**CAUSTIC**, a curve of bright light, formed by the intersection of refracted or reflected rays. If of refracted light, it is called a diacaustic, if of reflected, a catacaustic. The most familiar instance is seen on the table-cloth inside a polished napkin ring.

**CAUTERETS**, a French watering place in the department of Hautes Pyrénées, situated in a fertile basin 2,900 feet above the sea, and enclosed by rugged mountains. It has hot sulphur springs whose temperature varies from 103° to 122°.

**CAUTERY** (Gr. *καυτηριον*, burning), the searing of flesh with caustic applications, as pure potash, or with a hot iron. The former was called by the ancients potential, and the latter, the actual cantery.

**CAVA**, a city of Naples, in the province of Principato Citeriore, situated in the agreeable valley of Fenestra, 28 m. S. E. of Naples; pop. about 13,000. It is the seat of a bishop, suffragan to the pope, and has a cathedral, several other churches, and a convent for gentlewomen. The district is unproductive, but the town flourishes by commerce and by manufactures of silk, cotton, and woollen. About one mile from Cava is the celebrated Benedictine monastery of *La Trinità della Cava*, whose library and archives, now transferred to Naples, were the richest in the kingdom.

**CAVAIGNAC**. I. **JEAN BAPTISTE**, a member of the French national convention, born in 1762, at Gordon, died in 1829 at Brussels. Having as administrator of the Haute Garonne acquired some popularity in that department, he

was elected to the convention, where he voted for the death of Louis XVI. As commissary from that assembly to the army in the Vendée, and afterward to that in the Pyrénées, he gave evidence of energy and talent. He took part with the Thermidoreans against Robespierre, and was sent on a third mission to the army of Rhin et Moselle. Having returned to Paris, he was on the 1st Prairial intrusted with the command of the troops to protect the convention against the rebels, but was unable to prevent their invading the hall of the assembly. On the 18th Vendémiaire, he was made an assistant to Barras in the defence of the convention, but had not much to do, owing to the appointment by his colleague of the young Gen. Bonaparte, who took all the responsibility on himself and saved the convention. Cavaignac was for a while a member of the council of 500. On retiring from that assembly, his reduced circumstances constrained him to accept several inferior offices. In 1806 he entered the service of Naples under Joseph, and was appointed councillor of state by his successor Murat. He returned to France in 1812, and was in 1815, during the Hundred Days, appointed prefect of the Somme. On the 2d restoration, being expelled from France as a regicide, he repaired to Brussels, where he lived obscurely. II. **ÉLÉONORE LOUIS GODFREY**, a French republican journalist, the elder son of the preceding, born at Paris in 1801, died May 5, 1845. He was one of the most popular leaders of the republican party during the restoration and the reign of Louis Philippe. He distinguished himself in the revolution of July, but, disappointed by the elevation of Louis Philippe to the throne, he took a more or less active part in the conspiracies for the overthrow of the new dynasty. He was several times arrested and arraigned before the tribunals, but generally evaded condemnation through his skilful defence, while winning great popularity by his chivalric and dignified bearing in all his trials. He was one of the founders of the *société des amis du peuple*, and on the dissolution of that association he was active in the more powerful organization of the *société des droits de l'homme*. After the troubles of 1834 he was arrested with several others, tried before a special court, and sentenced to prison. He was incarcerated at St. Pélagie, but succeeded in making his escape July 13, 1835, and retired to Belgium, where he spent nearly 6 years. In 1841 he returned to France, and became one of the editors and in fact the inspiring mind of the *Réforme*, the most violent of the opposition journals. He was the author of *Le cardinal Dubois, ou tout chemin mène à Rome*, and *Une tuorie de Cosaque*, which are remembered only on account of his political reputation. III. **LOUIS EUGÈNE**, a French general, and chief of the republic in 1848, 2d son of Jean Baptiste, born in Paris, Oct. 15, 1802, died at his country seat, Château Ournes, near Flée, department of Sarthe, Oct. 28, 1857. He was educated at the polytechnic school, and entered the army as

sub-lieutenant of engineers, took part in the French expedition to the Morea, and was appointed to a captaincy in 1839. On the revolution of 1830, he was the first officer of his regiment to declare for the new order of things, but being soon dissatisfied with the tendencies of the government he entered the *association nationale*, an organization of the opposition, in consequence of which he was for a while discharged from active service. In 1832 he was sent to Africa, where he had to make his way by his own talents and prowess. Being intrusted in 1836 with the command of the fortress of Tlemcen, he held this advanced post for 3 years against the repeated assaults of the Arabs. When relieved in 1839 from his arduous task, his health having been impaired by incessant exertions, he asked to be placed on leave; he was then made a major. A few months later he returned to Africa, where his defence of Ocherchell was no less brilliant than that of Tlemcen. In 1840 he was promoted to a lieutenant-colonelcy, and then to the colonelcy of the Zouaves. Finally, in 1844, he was made brigadier-general and governor of the province of Oran. On the revolution of February, 1848, he was appointed governor-general of Algeria, and promoted to the rank of general of division. The same year he was elected to the constituent assembly by both the departments of Seine and Lot; the latter being the native place of his family, he gave it his preference, and was allowed to leave Algeria to take his seat as a representative. He reached Paris 2 days after the disturbances of May 15, and was immediately appointed minister of war, with the condition that he should bring to Paris a sufficient number of troops to protect the capital against any popular outbreak. In a few weeks 75,000 regular troops were gathered within the walls, while 190,000 national guards were ready to support them. All was ready for civil war, which broke out on the dissolution of the *ateliers nationaux*. On June 22 barricades were erected in the most central parts of the city. The executive committee of the constituent assembly advised that troops should be sent in all directions to anticipate hostile preparations; but Cavaignac refused, and concentrated his troops in order finally to bear on the principal points with irresistible force. The assembly having at last invested him with dictatorial powers, the struggle commenced in earnest June 23, at 11 o'clock, and lasted for 70 hours with scarcely an intermission. At last victory was secured to the government through the skilful measures of Cavaignac, the intrepidity of his fellow-generals, Bedeau, Lamoricière, Foucher, the firmness of the national guard, the courage of the regular troops, but above all, the exertions of the young *gardes mobiles*. On June 29 Cavaignac resigned his dictatorship, and the assembly unanimously elected him chief of the executive power. He was then the most popular man among the *bourgeoisie*; but he was disliked by the lower classes, and had, beside, drawn

upon himself the unrelenting hatred of several journalists, especially Émile de Girardin, who at once waged against him the most formidable warfare. Several propositions were made in the assembly to make him president for 4 years without recourse to an election; but the idea was contrary to his principles, and he rejected it. When the presidential election came on (Dec. 10), although Cavaignac had at his disposal all the government patronage, he was defeated by an immense majority. Out of 7,449,471 votes, Cavaignac received but 1,448,802, while Louis Napoleon had 5,584,520. Cavaignac bore this defeat with dignity and tranquillity. On Dec. 20 he resigned his power into the hands of the newly-elected president, and modestly returned to his seat in the assembly. He continued to take part in the proceedings of that body, speaking rarely, but with marked ability and effect. On the *coup d'état* of Dec. 1851, he was arrested and taken to the castle of Ham, his name being placed at the head of the list of the proscribed. Previous to this event he had been betrothed to Mlle. Odier, daughter of a wealthy banker of Paris; after the *coup d'état* and the ruin of the republican party, efforts were made to break off the match, but in vain; and the first friendly face which Cavaignac saw in the fortress of Ham, after his imprisonment, was that of the maiden who a few days later became his wife. The marriage taking place immediately after his release, when he was at his own request placed on the retired list of the army. He subsequently lived for a time in retirement in Belgium, and when he returned to France resided mainly at his country seat in the department of Sarthe. In 1852 he was elected to the legislative body, but refused to take the oath of allegiance to the emperor. In 1857 he was again chosen to the same office by the electors of the 8d district of Paris, as a kind of protest against the existing form of government, but again refused to take the oath. This was the last public act of his life. Grief and chagrin at the measures of the government and the sufferings of thousands of his political friends condemned to exile and misery had long caused in him emotions which aggravated a disease of the heart, the germs of which had been contracted in Africa; and one morning, as he was leaving his house to visit a friend, he suddenly expired in the arms of an attendant without uttering a word. His devoted wife conveyed his remains to Paris, where they received the honors of a funeral procession in which many thousands of persons took part. He left an only son.

CAVAILLON, a French town on the river Durance, in the department of Vaucluse, and the arrondissement of Avignon; pop. 7,405. It has an active trade in raw silk, fruits, and preserves, and manufactories of vermicelli and macaroni. During the revolution its fortifications were destroyed. It was an ancient Roman town, but having been repeatedly pillaged by barbarians, and having suffered much from an earthquake in 1731, it has few remains of antiquity. The

most remarkable of its ruins is a triumphal arch supposed to have belonged to the Augustan age. The country round Cavaillon is justly called the garden of the province.

CAVALCANTI, Guido, an Italian philosopher and poet, born in Florence in the early part of the 18th century, died in 1800. Dante, who was his friend, introduces Cavalcanti's father in his *Inferno* into the regions of the condemned, on account of his Epicurean philosophy. Guido was distinguished for the lofty style of his poetry, which was composed for the most part of sonnets and canzonets, the most celebrated of which are those dedicated to Mandetta, a lady whom he had met at Toulouse after his return from a pilgrimage to Compostella. Having married a daughter of the Ghibelline chief Farina degli Uberti, he succeeded his father-in-law as head of that party. When the leaders of both factions were exiled by the citizens, Cavalcanti was sent to Sarzana, where his health was so much injured by the bad air, that he died soon after his return. His *Rime, edite ed inedite*, were published by Ciociaporti at Florence, in 1818.

CAVALIER, JEAN, a leader of the Camisards or insurgent Protestants in the Cevennes, born about 1679 at Ribaute, in Languedoc, died in May, 1740, at Chelsea, a suburb of London. The son of a poor peasant, he was first a shepherd, then a journeyman baker. Religious persecution afterward forced him to leave his country, but after living a few months at Geneva, he secretly came back, and was foremost among the promoters of the insurrection of 1702. He was at once a preacher and a soldier, and his talents, devotion, and prophetic gifts gave him an authority almost equal to that of the Camisard commander-in-chief. When Marshal Villars took the command of the royal troops, Cavalier had an interview with him at Nîmes, and agreed on terms of peace: the young chief was to be received into the king's service, with the rank of colonel and a handsome pension; a regiment was to be raised among the Camisards, who were now to enjoy the free exercise of their religion. This treaty did not suit the other chiefs or the people. Cavalier was immediately discarded by them, and departed for Paris attended by very few companions. There he was treated with contempt by the king; and having received secret advice that he was to be put in prison, he made his escape to Switzerland, whence he went to Holland. Having entered the service of England, he organized a regiment of French refugees, whom he took to Spain to support the cause of Charles. At the battle of Almanza this regiment engaged a battalion of French troops, which fought with such fury that the greatest part of both corps were left dead on the battle field. Cavalier afterward joined the army of Prince Eugène, who entered Provence and besieged Toulon. After the peace of Utrecht, he repaired to England, where he was received with great favor, obtaining the rank of gen-

eral, and being appointed governor of the island of Jersey. An account of the "War in the Cevennes under Col. Cavalier" was published in English in 1726. Probably it was not written by Cavalier himself, and is of very little value. Eugène Sue has also furnished a work founded upon his life.

CAVALIER (Spanish *caballero*), a gentleman who fought on horseback, in the first instance, when the cavalry of European armies consisted wholly of the feudal landed aristocracy, with the gentlemen of their followings. In its secondary sense, both in Spanish and English, the word came to signify absolutely, and without any reference to its derivation or origin, a nobleman or gentleman of birth and breeding; and, as a yet further deduction, a gentleman of manners, accomplishments, and air. In the reign of Charles I. of England, the word, being used probably by the upper classes somewhat absolutely and hypercritically, so as to be offensive to their inferiors, received a particular and pointed application, which it long continued to bear in England, as signifying one attached to the court and high church party, and thereafter a Jacobite, or one attached to the Stuart family and favorable to their restoration, after the transfer of the crown to the houses of Nassau and Brunswick. It is commonly asserted that this usage of the word is to be ascribed, as is the case with many if not most political and party nicknames, to its introduction by the opposite faction as a term of derision. This may be and probably is true in some degree; but it was certainly applied by gentlemen to themselves and to one another, before it was employed as a by-name of party reproach.

CAVALIERI, or CAVALLERI, BONAVENTURA, an Italian mathematician, born in Milan in 1598, died in Bologna, Dec. 3, 1647. He studied mathematics at Pisa under B. Castelli, a disciple of Galileo, officiated as professor in Bologna, and was author of several mathematical works, the most prominent of which was entitled *Geometria Indivisibilibus*, &c. Having expressed in this work some original ideas concerning the abstruse sciences, the Italians claim him to be the inventor of the infinitesimal calculus.

CAVALLINI, PIETRO, a Roman painter, who flourished in the latter part of the 13th and in the early part of the 14th century. He was the disciple of Giotto, and the first painter of the Roman school who was worthy of competing with the great Florentine masters. His most celebrated work, a picture of the "Crucifixion," is at Assisi. Most of his other works are now destroyed.

CAVALLO, TIBERIUS, an electrician, born in Naples in March, 1749, was a resident of London during the greatest part of his life, and died there in Dec. 1809. He was the son of a Neapolitan physician, completed his education in the university of his native city, and went at an early age to England with a view of becoming a merchant; but devoting himself to the

study of natural philosophy, he gained a high reputation as a voluminous writer and experimenter in electricity and the physical sciences. He invented an instrument called a condenser, and another called a multiplier of electricity, and other instruments. His best work was his "Elements of Natural and Experimental Philosophy" (4 vols. 8vo. Lond. 1803).

CAVALRY (Fr. *cavalerie*, from *cavalier*, a horseman, from *cheval*, a horse), a body of soldiers on horseback. The use of the horse for riding, and the introduction of bodies of mounted men into armies, naturally originated in those countries to which the horse is indigenous, and where the climate and gramineous productions of the soil favored the development of all its physical capabilities. While the horse in Europe and tropical Asia soon degenerated into a clumsy animal or an undersized pony, the breed of Arabia, Persia, Asia Minor, Egypt, and the north coast of Africa attained great beauty, speed, docility, and endurance. But it appears that at first it was used in harness only; at least in military history the war chariot long precedes the armed horseman. The Egyptian monuments show plenty of war chariots, but with a single exception no horsemen; and that exception appears to belong to the Roman period. Still it is certain that at least a couple of centuries before the country was conquered by the Persians, the Egyptians had a numerous cavalry, and the commander of this arm is more than once named among the most important officials of the court. It is very likely that the Egyptians became acquainted with cavalry during their war with the Assyrians; for on the Assyrian monuments horsemen are often delineated, and their use in war with Assyrian armies at a very early period is established beyond a doubt. With them, also, the saddle appears to have originated. In the older sculptures the soldier rides the bare back of the animal; at a later epoch we find a kind of pad or cushion introduced, and finally a high saddle similar to that now used all over the East. The Persians and Medians, at the time they appear in history, were a nation of horsemen. Though they retained the war chariot, and even left to it its ancient precedence over the younger arm of cavalry, yet the great numerical strength of the mounted men gave the latter an importance it had never possessed in any former service. The cavalry of the Assyrians, Egyptians, and Persians consisted of that kind which still prevails in the East, and which, up to very recent times, was alone employed in northern Africa, Asia, and eastern Europe, irregular cavalry. But no sooner had the Greeks so far improved their breed of horses by crosses with the eastern horse, as to fit them for cavalry purposes, than they began to organize the arm upon a new principle. They are the creators of both regular infantry and regular cavalry. They formed the masses of fighting men into distinct bodies, armed and equipped them according to the purpose they were intended for, and taught them

to act in concert, to move in ranks and files, to keep together in a definite tactical formation, and thus to throw the weight of their concentrated and advancing mass upon a given point of the enemy's front. Thus organized, they proved everywhere superior to the undrilled, unwieldy, and uncontrolled mobs brought against them by the Asiatics. We have no instance of a combat of Grecian cavalry against Persian horsemen before the time the Persians themselves had formed bodies of a more regular kind of cavalry; but there can be no doubt that the result would have been the same as when the infantry of both nations met in battle. Cavalry, at first, was organized by the horse-breeding countries of Greece only, such as Thessalia and Boeotia; but, very soon after, the Athenians formed a body of heavy cavalry, beside mounted archers for outpost and skirmishing duty. The Spartans, too, had the *élite* of their youth formed into a body of horse-guards; but they had no faith in cavalry, and made them dismount in battle, and fight as infantry. From the Greeks of Asia Minor, as well as from the Greek mercenaries serving in their army, the Persians learned the formation of regular cavalry, and there is no doubt that a considerable portion of the Persian horse that fought against Alexander the Great were more or less trained to act in compact bodies in a regular manner. The Macedonians, however, were more than a match for them. With that people horsemanship was an accomplishment indispensable to the young nobility, and cavalry held a high rank in their army. The cavalry of Philip and Alexander consisted of the Macedonian and Thessalian nobility, with a few squadrons recruited in Greece proper. It was composed of heavy horsemen—*cataphracts*—armed with helmet and breastplate, cuisses, and a long spear. It usually charged in a compact body, in an oblong or wedge-shaped column, sometimes also in line. The light cavalry, composed of auxiliary troops, was of a more or less irregular kind, and served like the Cossacks now-a-days for outpost duty and skirmishing.—The battle of the Granicus (384 B. C.) offers the first instance of an engagement in which cavalry played a decisive part. The Persian cavalry was placed at charging distance from the fords of the river. As soon as the heads of columns of the Macedonian infantry had passed the river, and before they could deploy, the Persian horse broke in upon them and drove them headlong down again into the river. This manoeuvre, repeated several times over with perfect success, shows at once that the Persians had regular cavalry to oppose to the Macedonians. To surprise infantry in the very moment of its greatest weakness, viz., when passing from one tactical formation into another, requires the cavalry to be well in hand, and perfectly under the control of its commanders. Irregular levies are incapable of it. Ptolemy, who commanded the advanced guard of Alexander's army, could make no headway until the Macedonian cuirassiers passed

the river, and charged the Persians in flank. A long combat ensued, but the Persian horsemen being disposed in one line without reserves, and being at last abandoned by the Asiatic Greeks in their army, were ultimately routed. The battle of Arbela (331 B. C.) was the most glorious for the Macedonian cavalry. Alexander in person led the Macedonian horse, which formed the extreme right of his order of battle, while the Thessalian horse formed the left. The Persians tried to outflank him, but in the decisive moment Alexander brought fresh men from the rear so as to overlap them in their turn; they at the same time left a gap between their left and centre. Into this gap Alexander at once dashed, separating their left from the remainder of the army, rolling it up completely, and pursuing it for a considerable distance. Then, on being called upon to send assistance to his own menaced left, he rallied his horse in a very short time, and passing behind the enemy's centre fell upon the rear of his right. The battle was thus gained, and Alexander from that day ranks among the first of the cavalry generals of all times. And to crown the work, his cavalry pursued the fugitive enemy with such ardor that its advanced guard stood the next day 75 miles in advance of the battle-field. It is very curious to observe that the general principles of cavalry tactics were as well understood at that time as they are now. To attack infantry in the formation of the march, or during a change of formation; to attack cavalry principally on its flank; to profit by any opening in the enemy's line by dashing in and wheeling to the right and left, so as to take in flank and rear the troops placed next to such a gap; to follow up a victory by a rapid and inexorable pursuit of the broken enemy—these are among the first and most important rules that every modern cavalry officer has to learn. After Alexander's death we hear no more of that splendid cavalry of Greece and Macedon. In Greece infantry again prevailed, and in Asia and Egypt the mounted service soon degenerated.—The Romans never were horsemen. What little cavalry they had with the legions was glad to fight on foot. Their horses were of an inferior breed, and the men could not ride. But on the southern side of the Mediterranean a cavalry was formed, which not only rivalled, but even outshone that of Alexander. The Carthaginian generals, Hamilcar and Hannibal, had succeeded in forming, beside their Numidian irregular horsemen, a body of first-rate regular cavalry, and thus created an arm which almost everywhere insured them a victory. The Berbers of north Africa are, up to the present day, a nation of horsemen, at least in the plains, and the splendid Barb horse which carried Hannibal's swordsmen into the deep masses of the Roman infantry, with a rapidity and vehemence unknown before, still mounts the finest regiments of the whole French cavalry, the *chasseurs d'Afrique*, and is by them acknowledged to be the

best war-horse in existence. The Carthaginian infantry was far inferior to that of the Romans, even after it had been long trained by its two great chiefs; it would not have had the slightest chance against the Roman legions, had it not been for the assistance of that cavalry which alone made it possible for Hannibal to hold out 16 years in Italy; and when this cavalry had been worn out by the wear and tear of so many campaigns, not by the sword of the enemy, there was no longer a place in Italy for him. Hannibal's battles have that in common with those of Frederic the Great, that most of them were won by cavalry over first-rate infantry; and, indeed, at no other time has cavalry performed such glorious deeds as under those two great commanders. From what nation, and upon what tactical principles, Hamilcar and Hannibal formed their regular cavalry, we are not precisely informed. But as their Numidian light horse are always clearly distinguished from the heavy or regular cavalry, we may conclude that the latter was not composed of Berber tribes. There were very likely many foreign mercenaries and some Carthaginians; the great mass, however, most probably consisted of Spaniards, as it was formed in their country, and as even in Cæsar's time Spanish horsemen were attached to most Roman armies. Hannibal being well acquainted with Greek civilization, and Greek mercenaries and soldiers of fortune having before his time served under the Carthaginian standards, there can scarcely be a doubt that the organization of the Grecian and Macedonian heavy cavalry served as the basis for that of the Carthaginian. The very first encounter in Italy settled the question of the superiority of the Carthaginian horse. At the Ticinus (218 B. C.), the Roman consul Publius Scipio, while reconnoitring with his cavalry and light infantry, met with the Carthaginian cavalry led by Hannibal on a similar errand. Hannibal at once attacked. The Roman light infantry stood in first line, the cavalry formed the second. The Carthaginian heavy horse charged the infantry, dispersed it, and then fell at once on the Roman cavalry in front, while the Numidian irregulars charged their flank and rear. The battle was short. The Romans fought bravely, but they had no chance whatever. They could not ride; their own horses vanquished them; frightened by the flight of the Roman skirmishers, who were driven in upon them and sought shelter between them, they threw off many of their riders and broke up the formation. Other troopers, not trusting to their horsemanship, wisely dismounted and attempted to fight as infantry. But already the Carthaginian cuirassiers were in the midst of them, while the inevitable Numidians galloped round the confused mass, cutting down every fugitive who detached himself from it. The loss of the Romans was considerable, and Publius Scipio himself was wounded. At the Trebia, Hannibal succeeded in enticing the Romans to cross that river, so as to fight with this

barrier in their rear. No sooner was this accomplished than he advanced with all his troops against them and forced them to battle. The Romans, like the Carthaginians, had their infantry in the centre; but opposite to the 2 Roman wings formed by cavalry, Hannibal placed his elephants, making use of his cavalry to outflank and overlap both wings of his opponents. At the very outset of the battle, the Roman cavalry, thus turned and outnumbered, was completely defeated; but the Roman infantry drove back the Carthaginian centre and gained ground. The victorious Carthaginian horse now attacked them in front and flank; they compelled them to desist from advancing, but could not break them. Hannibal, however, knowing the solidity of the Roman legion, had sent 1,000 horsemen and 1,000 picked foot soldiers under his brother Mago by a roundabout way to their rear. These fresh troops now fell upon them and succeeded in breaking the second line; but the first line, 10,000 men, closed up, and in a compact body forced their way through the enemy, and marched down the river toward Placentia, where they crossed it unmolested. In the battle of Cannæ (216 B. C.), the Romans had 80,000 infantry and 6,000 cavalry; the Carthaginians, 40,000 infantry and 10,000 cavalry. The cavalry of Latium formed the Roman right wing, leaning on the river Aufidus; that of the allied Italians stood on the left, while the infantry formed the centre. Hannibal, too, placed his infantry in the centre, the Celtic and Spanish levies again forming the wings, while between them, a little further back, stood his African infantry, now equipped and organized on the Roman system. Of his cavalry, he placed the Numidians on the right wing, where the open plain permitted them, by their superior mobility and rapidity, to evade the charges of the Italian heavy horse opposed to them; while the whole of the heavy cavalry, under Hasdrubal, was stationed on the left, close to the river. On the Roman left, the Numidians gave the Italian cavalry plenty to do, but from their very nature as irregular horse could not break up their close array by regular charges. In the centre, the Roman infantry soon drove back the Celts and Spaniards, and then formed into a wedge-shaped column in order to attack the African infantry. These, however, wheeled inward, and charging the unwieldy mass in line, broke its impetus; and there the battle, now, became a standing fight. But Hasdrubal's heavy horse had, in the mean time, prepared the defeat of the Romans. Having furiously charged the Roman cavalry of the right wing, they dispersed them after a stout resistance, passed, like Alexander at Arbela, behind the Roman centre, fell upon the rear of the Italian cavalry, broke it completely, and, leaving it an easy prey to the Numidians, formed for a grand charge on the flanks and rear of the Roman infantry. This was decisive. The unwieldy mass, attacked on all sides, gave way, opened out, was

broken, and succumbed. Never was there such complete destruction of an army. The Romans lost 70,000 men; of their cavalry, only 70 men escaped. The Carthaginians lost not quite 6,000,  $\frac{1}{4}$  of whom belonged to the Celtic contingents, which had had to bear the brunt of the first attack of the legions. Of Hasdrubal's 6,000 regular horse, which had won the whole of the battle, not more than 200 men were killed and wounded. The Roman cavalry of later times was not much better than that of the Punic wars. It was attached to the legions in small bodies, never forming an independent arm. Beside this legionary cavalry, there were in Caesar's time Spanish, Celtic, and German mercenary horsemen, all of them more or less irregular. No cavalry serving with the Romans ever performed things worthy of mention; and so neglected and ineffective was this arm, that the Parthian irregulars of Kharrassan remained extremely formidable to Roman armies. In the eastern half of the empire, however, the ancient passion for horses and horsemanship retained its sway; and Byzantium remained, up to its conquest by the Turks, the great horse mart and riding academy of Europe. Accordingly, we find that during the momentary revival of the Byzantine empire, under Justinian, its cavalry was on a comparatively respectable footing; and in the battle of Capua, in A. D. 552, the eunuch Narses is reported to have defeated the Teutonic invaders of Italy principally by means of this arm.—The establishment, in all countries of western Europe, of a conquering aristocracy of Teutonic origin, led to a new era in the history of cavalry. The nobility took everywhere to the mounted service, under the designation of men-at-arms (*gens d'armes*), forming a body of horse of the heaviest description, in which not only the riders but also the horses were covered with defensive armor of metal. The first battle at which such cavalry appeared was that at Poitiers, where Charles Martel, in 732, beat back the torrent of Arab invasion. The Frankish knighthood, under Eudes, duke of Aquitania, broke through the Moorish ranks and took their camp. But such a body was not fit for pursuit; and the Arabs, accordingly, under shelter of their indefatigable irregular horse, retired unmolested into Spain. From this battle dates a series of wars in which the massive but unwieldy regular cavalry of the West fought the agile irregulars of the East with varied success. The German knighthood measured swords, during nearly the whole of the 10th century, with the wild Hungarian horsemen, and totally defeated them by their close array at Merseburg in 933, and at the Lech in 955. The Spanish chivalry, for several centuries, fought the Moorish invaders of their country, and ultimately conquered them. But when the occidental "heavies" transferred the seat of war, during the crusades, to the eastern homes of their enemies, they were in their turn defeated, and in most cases complete-

ly destroyed; neither they nor their horses could stand the climate, the immensely long marches, and the want of proper food and forage. These crusades were followed by a fresh irruption of eastern horsemen into Europe, that of the Mongols. Having overrun Russia, and the provinces of Poland, they were met at Wahlstatt in Silesia, in 1241, by a combined Polish and German army. After a long struggle, the Asiatics defeated the worn-out steel-clad knights, but the victory was so dearly bought that it broke the power of the invaders. The Mongols advanced no further, and soon, by divisions among themselves, ceased to be dangerous, and were driven back. During the whole of the middle ages, cavalry remained the chief arm of all armies: with the eastern nations the light irregular horse had always held that rank; with those of western Europe, the heavy regular cavalry formed by the knighthood was in this period the arm which decided every battle. This preëminence of the mounted arm was not so much caused by its own excellence, for the irregulars of the East were incapable of orderly fight, and the regulars of the West were clumsy beyond belief in their movements; it was principally caused by the bad quality of the infantry. Asiatics as well as Europeans held that arm in contempt; it was composed of those who could not afford to appear mounted, principally of slaves or serfs. There was no proper organization for it; without defensive armor, with a pike and sword for its sole weapons, it might now and then by its deep formation withstand the furious but disorderly charges of eastern horsemen; but it was resistlessly ridden over by the invulnerable men-at-arms of the West. The only exception was formed by the English infantry, which derived its strength from its formidable weapon, the long-bow. The numerical proportion of the European cavalry of these times to the remainder of the army was certainly not as strong as it was a few centuries later, nor even as it is now. Knights were not so exceedingly numerous, and in many large battles we find that not more than 800 or 1,000 of them were present. But they were generally sufficient to dispose of any number of foot soldiers, as soon as they had succeeded in driving from the field the enemy's men-at-arms. The general mode of fighting of these men-at-arms was in line, in single rank, the rear rank being formed by the esquires, who wore, generally speaking, a less complete and heavy suit of armor. These lines, once in the midst of the enemy, soon dissolved themselves into single combatants, and finished the battle by sheer hand-to-hand fighting. Subsequently, when firearms began to come into use, deep masses were formed, generally squares; but then the days of chivalry were numbered. During the 15th century, not only was artillery introduced into the field of battle, while part of the infantry, the skirmishers of those times, were armed

with muskets, but a general change took place in the character of infantry. This arm began to be formed by the enlistment of mercenaries who made a profession of military service. The German *Landknechte* and the Swiss were such professional soldiers, and they very soon introduced more regular formations and tactical movements. The ancient Doric and Macedonian phalanx was, in a manner, revived; a helmet and a breastplate somewhat protected the men against the lance and sword of the cavalry; and when, at Novara (1513), the Swiss infantry drove the French knighthood actually from the field, there was no further use for such valiant but unwieldy horsemen. Accordingly, after the insurrection of the Netherlands against Spain, we find a new class of cavalry, the German *Reiters* (*reiters* of the French), raised by voluntary enlistment, like the infantry, and armed with helmet and breastplate, sword and pistols. They were fully as heavy as the modern cuirassiers, yet far lighter than the knights. They soon proved their superiority over the heavy men-at-arms. These now disappear, and with them the lance; the sword and short firearms now form the general armature for cavalry. About the same time (end of the 16th century) the hybrid arm of dragoons was introduced, first in France, then in the other countries of Europe. Armed with muskets, they were intended to fight, according to circumstances, either as infantry or as cavalry. A similar corps had been formed by Alexander the Great under the name of the *dimacha*, but it had not yet been imitated. The dragoons of the 16th century had a longer existence, but toward the middle of the 18th century they had everywhere lost their hybrid character, except in name, and were generally used as cavalry. The most important feature in their formation was that they were the first body of regular cavalry which was completely deprived of defensive armor. The creation of real hybrid dragoons was again attempted, on a large scale, by the emperor Nicholas of Russia; but it was soon proved that, before the enemy, they must always be used as cavalry, and consequently Alexander II. very soon reduced them to simple cavalry, with no more pretensions to dismounted service than hussars or cuirassiers. Maurice of Orange, the great Dutch commander, formed his *Reiters* for the first time in something like our modern tactical organization. He taught them to execute charges and evolutions in separate bodies, and in more than one line; to wheel, break off, form column and line, and change front, without disorder, and in separate squadrons and troops. Thus a cavalry fight was no longer decided by one charge of the whole mass, but by the successive charges of separate squadrons and lines supporting each other. His cavalry was formed generally 5 deep. In other armies it fought in deep bodies, and where a line formation was adopted it was still from 5 to 8 deep. The 17th century, having completely done away with the costly men-at-



arms, increased the numerical strength of cavalry to an enormous extent. At no other period was there so large a proportion of that arm in every army. In the 80 years' war from  $\frac{1}{2}$  to nearly  $\frac{1}{2}$  of each army was generally composed of cavalry; in single instances there were 2 horsemen to 1 foot soldier. Gustavus Adolphus stands at the head of cavalry commanders of this period. His mounted troops consisted of cuirassiers and dragoons, the latter fighting almost always as cavalry. His cuirassiers, too, were much lighter than those of the emperor, and soon proved their incontestable superiority. The Swedish cavalry were formed 8 deep; their orders were, contrary to the usage of the cuirassiers of most armies, whose chief arm was the pistol, not to lose time in firing, but to charge the enemy sword in hand. At this period the cavalry, which during the middle ages had generally been placed in the centre, was again placed, as in antiquity, on the wings of the army, where it was formed in 2 lines. In England, the civil war gave rise to 2 distinguished cavalry leaders. Prince Rupert, on the royalist side, had as much "dash" in him as any cavalry general, but he was almost always carried too far, lost his cavalry out of hand, and was himself so taken up with what was immediately before him, that the general always disappeared in the "bold dragoon." Cromwell, on the other hand, with quite as much dash where it was required, was a far better general; he kept his men well in hand, always held back a reserve for unforeseen events and decisive movements, knew how to manoeuvre, and thus proved generally victorious over his inconsiderate opponent. He won the battles of Marston Moor and Naseby by his cavalry alone.—With most armies the use of the firearm still remained the chief employment of cavalry in battle, the Swedes and English alone excepted. In France, Prussia, and Austria, cavalry was drilled to use the carbine exactly as infantry used the musket. They fired on horseback, the line standing still all the while, by files, platoons, ranks, &c.; and when a movement for a charge was made, the line advanced at a trot, pulled up at a short distance from the enemy, gave a volley, drew swords, and then charged. The effective fire of the long lines of infantry had shaken all confidence in the charge of a cavalry which was no longer protected by armor; consequently, riding was neglected, no movements could be executed at a quick pace, and even at a slow pace accidents happened by the score to both men and horses. The drill was mostly dismounted work, and their officers had no idea whatever of the way of handling cavalry in battle. The French, it is true, sometimes charged sword in hand, and Charles XII. of Sweden, true to his national tradition, always charged full speed without firing, dispersing cavalry and infantry, and sometimes even taking field works of a weak profile. But it was reserved for Frederic the Great and his great cavalry commander, Seydlitz, to revolutionize the mounted service, and

to raise it to the culminating point of glory. The Prussian cavalry, heavy men on clumsy horses, drilled for firing only, such as Frederic's father had left them to his son, were beaten in an instant at Mollwitz (1741). But no sooner was the first Silesian war brought to a close than Frederic entirely reorganized his cavalry. Firing and dismounted drill were thrown into the background, and riding was attended to. "All evolutions are to be made with the greatest speed, all wheels to be done at a canter. Cavalry officers must above all things form the men into perfect riders; the cuirassiers to be as handy and expert on horseback as a hunter, and well exercised in the use of the sword." The men were to ride every day. Riding in difficult ground, across obstacles, and fencing on horseback, were the principal drills. In a charge, no firing at all was allowed until the 1st and 2d lines of the enemy were completely broken. "Every squadron, as it advances to the charge, is to attack the enemy sword in hand, and no commander shall be allowed to let his troops fire under penalty of infamous cashiering; the generals of brigades to be answerable for this. As they advance, they first fall into a quick trot, and finally into a full gallop, but well closed; and if they attack in this way, his majesty is certain that the enemy will always be broken." "Every officer of cavalry will have always present to his mind that there are but 2 things required to beat the enemy: 1, to charge him with the greatest possible speed and force, and 2, to outflank him." These passages from Frederic's instructions sufficiently show the total revolution he carried out in cavalry tactics. He was seconded admirably by Seydlitz, who always commanded his cuirassiers and dragoons, and made such troops of them that, for vehemence and order of charge, quickness of evolutions, readiness for flank attacks, and rapidity in rallying and reforming after a charge, no cavalry has ever equalled the Prussian cavalry of the 7 years' war. The fruits were soon visible. At Hohenfriedberg the Baireuth regiment of dragoons, 10 squadrons, rode down the whole left wing of the Austrian infantry, broke 21 battalions, took 66 stand of colors, 5 guns, and 4,000 prisoners. At Zorndorf, when the Prussian infantry had been forced to retreat, Seydlitz, with 36 squadrons, drove the victorious Russian cavalry from the field, and then fell upon the Russian infantry, completely defeating it with great slaughter. At Rossbach, Striegau, Kesselsdorf, Leuthen, and in 10 other battles, Frederic owed the victory to his splendid cavalry.—When the French revolutionary war broke out, the Austrians had adopted the Prussian system, but not so the French. The cavalry of the latter nation had, indeed, been much disorganized by the revolution, and in the beginning of the war the new formations proved almost useless. When their new infantry levies were met by the good cavalry of the English, Prussians, and Austrians, they were, during 1793

and '98, almost uniformly beaten. The cavalry, quite unable to cope with such opponents, was always kept in reserve until a few years' campaigning had improved them. Since 1796 and afterward every division of infantry had cavalry as a support; still, at Würzburg, the whole of the French cavalry was defeated by 59 Austrian squadrons (1796). When Napoleon took the direction of affairs in France, he did his best to improve the French cavalry. He found about the worst material that could be met with. As a nation, the French are decidedly the worst horsemen of Europe, and their horses, good for draught, are not well adapted for the saddle. Napoleon himself was but an indifferent rider, and neglected riding in others. Still he made great improvements, and after the camp of Boulogne, his cavalry in great part, mounted on German and Italian horses, was no despicable adversary. The campaigns of 1805 and 1806-'7 allowed his cavalry to absorb almost all the horses of the Austrian and Prussian armies, and beside, reënforced Napoleon's army by the excellent cavalry of the confederation of the Rhine and the grand duchy of Warsaw. Thus were formed those enormous masses of horsemen with which Napoleon acted in 1809, 1812, and the latter part of 1813, which, though generally designated as French, were in great part composed of Germans and Poles. The cuirass, which had been entirely done away with in the French army shortly before the revolution, was restored to a portion of the heavy cavalry by Napoleon. In other respects the organization and equipment remained nearly the same, except that with his Polish auxiliaries he received some regiments of light horse, armed with the lance, the costume and equipment of which were soon imitated in other armies. But in the tactical use of cavalry he introduced a complete change. According to the system of composing divisions and army corps of all 8 arms, a portion of the light cavalry was attached to each division or corps; but the mass of the arm, and especially all the heavy horse, were held together in reserve for the purpose of striking at a favorable moment a great decisive blow, or, in case of need, of covering the retreat of the army. These masses of cavalry, suddenly appearing on a given point of the battle-field, have often acted decisively; still, they never gained such brilliant successes as the horsemen of Frederic the Great. The cause of this is to be looked for partly in the changed tactics of infantry, which, by selecting chiefly broken ground for its operations, and always receiving cavalry in a square, made it more difficult for the latter arm to achieve such great victories as the Prussian horsemen had obtained over the long, thin infantry lines of their opponents. But it is also certain that Napoleon's cavalry was not equal to that of Frederic the Great, and that Napoleon's cavalry tactics were not in every instance an improvement upon those of Frederic. The indifferent riding of the French compelled them to charge at a com-

paratively slow pace, at a trot or a collected canter; there are but few instances where they charged at a gallop. Their great bravery and close ranks made up often enough for the curtailed impetus, but still their charge was not what would now be considered good. The old system of receiving hostile cavalry standing, carbine in hand, was in very many cases retained by the French cavalry, and in every such instance were they defeated. The last example of this happened at Danigkow (April 5, 1813), where about 1,200 French cavalry thus awaited a charge of 400 Prussians, and were completely beaten in spite of their numbers. As to Napoleon's tactics, the use of great masses of cavalry with him became such a fixed rule, that not only was the divisional cavalry weakened so as to be completely useless, but also in the employment of these masses he often neglected that successive engagement of his forces which is one of the principal points in modern tactics, and which is even more applicable to cavalry than to infantry. He introduced the cavalry charge in column, and even formed whole cavalry corps into one monster column, in such formations that the extrication of a single squadron or regiment became an utter impossibility, and that any attempt at deploying was entirely out of the question. His cavalry generals, too, were not up to the mark, and even the most brilliant of them, Murat, would have cut but a sorry figure if opposed to a Seydlitz. During the wars of 1813, '14, and '15, cavalry tactics had decidedly improved on the part of Napoleon's opponents. Though to a great extent following Napoleon's system of holding cavalry in reserve in large masses, and therefore very often keeping the greater portion of the cavalry entirely out of an action, still in many instances a return to the tactics of Frederic was attempted. In the Prussian army the old spirit was revived. Blücher was the first to use his cavalry more boldly, and generally with success. The ambuscade of Haynau (1813), where 20 Prussian squadrons rode down 8 French battalions and took 18 guns, marks a turning point in the modern history of cavalry, and forms a favorable contrast to the tactics of Lützen, where the allies held 18,000 horse entirely in reserve until the battle was lost, although a more favorable cavalry ground could not be found.—The English had never adopted the system of forming large masses of cavalry, and had therefore many successes, although Napier himself admits that their cavalry was not so good at that time as that of the French. At Waterloo (where, by the way, the French cuirassiers for once charged at full speed), the English cavalry was admirably handled and generally successful, except where it followed its national weakness of getting out of hand. Since the peace of 1815, Napoleon's tactics, though still preserved in the regulations of most armies, have again made room for those of Frederic. Riding is better attended to, though still not at all to the

extent it should be. The idea of receiving the enemy carbine in hand is scouted; Frederic's rule is everywhere revived, that every cavalry commander who allows the enemy to charge him, instead of charging himself, deserves to be cashiered. The gallop is again the pace of the charge; and the column attack has made way for charges in successive lines, with dispositions for flank attack, and with a possibility of manœuvring with single detachments during the charge. Still much remains to be done. A greater attention to riding, especially across country, a nearer approach in the saddle and the seat to those of the hunting-field, and above all, a reduction of the weight carried by the horse, are improvements called for in every service without exception.—From the history of cavalry let us now turn to its present organization and tactics. The recruiting of cavalry, as far as the men are concerned, is not different upon the whole from the way the other arms recruit themselves in each country. In some states, however, the natives of particular districts are destined to this service: thus in Russia, the Malorussians (natives of Little Russia); in Prussia, the Poles. In Austria, the heavy cavalry is recruited in Germany and Bohemia, the hussars exclusively in Hungary, the lancers mostly in the Polish provinces. The recruiting of the horses, however, deserves especial notice. In England, where the whole cavalry does not require in time of war above 10,000 horses, the government finds no difficulty in buying them; but in order to insure to the service the benefit of horses not worked till nearly 5 years old, 8-year-old colts, mostly Yorkshire bred, are bought and kept at government expense in depots till they are fit to be used. The price paid for the colts (£20 to £25), and the abundance of good horses in the country, make the British cavalry certainly the best mounted in the world. In Russia a similar abundance of horses exists, though the breed is inferior to the English. The remount officers buy the horses by wholesale in the southern and western provinces of the empire, mostly from Jewish dealers; they re-sell those that are unfit, and hand over to the various regiments such as are of its color (all horses being of the same color in a Russian regiment). The colonel is considered as it were proprietor of the horses; for a round sum paid to him he has to keep the regiment well mounted. The horses are expected to last 8 years. Formerly they were taken from the large breeding establishment of Volhynia and the Ukraine, where they are quite wild; but the breaking them for cavalry purposes was so difficult that it had to be given up. In Austria the horses are partly bought, but the greater portion have of late been furnished by the government breeding establishments, which can part every year with above 5,000 5-year-old cavalry horses. For a case of extraordinary effort, a country so rich in horses as Austria can rely upon the markets of the interior.

Prussia, 60 years ago, had to buy almost all her horses abroad, but now can mount the whole of her cavalry, line and landwehr, in the interior. For the line, the horses are bought at 4 years old, by remount commissaries, and sent into depots until old enough for service; 3,500 are required every year. In case of mobilization of the landwehr cavalry, all horses in the country, like the men, are liable to be taken for service; a compensation of from \$40 to \$70 is however paid for them. There are 3 times more serviceable horses in the country than can be required. France, of all European countries, is the worst off for horses. The breed, though often good and even excellent for draught, is generally unfit for the saddle. Government breeding studs (*haras*) have been long established, but not with the success they have had elsewhere; in 1888 these studs, and the remounting depots connected with them, could not furnish 1,000 horses to the service, bought or government bred. Gen. Laroche-Aymond considered that there were not altogether 20,000 horses in France between 4 and 7 years old, fit for cavalry service. Though the depots and studs have of late been much improved, they are still insufficient to fully supply the army. Algeria furnishes a splendid breed of cavalry horses, and the best regiments of the service, the *chasseurs d'Afrique*, are exclusively mounted with them, but the other regiments scarcely get any. Thus in case of a mobilization, the French are compelled to buy abroad, sometimes in England, but mostly in northern Germany, where they do not get the best class of horses, though each horse costs them nearly \$100. Many condemned horses from German cavalry regiments find their way into the ranks of the French, and altogether the French cavalry, the *chasseurs d'Afrique* excepted, is the worst mounted in Europe.—Cavalry is essentially of 2 kinds: heavy and light. The real distinctive character of the 2 is in the horses. Large and powerful horses cannot well work together with small, active, and quick ones. The former in a charge act less rapidly, but with greater weight; the latter act more by the speed and impetuosity of the attack, and are more over far more fit for single combat and skirmishing, for which heavy or large horses are neither handy nor intelligent enough. Thus far the distinction is necessary; but fashion, fancy, and the imitation of certain national costumes, have created numerous subdivisions and varieties, to notice which in detail would be of no interest. The heavy cavalry, at least in part, is in most countries furnished with a cuirass, which, however, is far from being shot proof; in Sardinia, its first rank carries a lance. Light cavalry is partly armed with the sword and carbine, partly with the lance. The carbine is either smooth-bored or rifled. Pistols are added in most cases to the armature of the rider; the United States cavalry alone carries the revolver. The sword is either straight, or curved to a greater or less degree; the first

preferable for thrusts, the second for cuts. The question as to the advantages of the lance over the sword is still under discussion. For close encounter the sword is undoubtedly preferable; and in a charge the lance, unless too long and heavy to be wielded, can scarcely act at all, but in the pursuit of broken cavalry it is found most effective. Of nations of horsemen, almost all trust to the sword; even the Cossack abandons his lance when he has to fight against the expert swordsmen of Circassia. The pistol is useless except for a signal shot; the carbine is not very effective, even if rifled, and never will be of much real use until a breech-loading one is adopted; the revolver in skilful hands is a formidable weapon for close encounter; still the queen of weapons for cavalry is a good, sharp, handy sword.—Beside the saddle, bridle, and armed rider, the cavalry horse has to carry a valise with reserve clothing, camp utensils, grooming tackle, and in a campaign also food for the rider and forage for itself. The sum total of this burden varies in different services and classes of cavalry, between 250 and 800 lbs. for the heavy marching order, a weight which will appear enormous when compared with what private saddle horses have to carry. This overweighting the horses is the weakest point of all cavalry. Great reforms are everywhere required in this respect. The weight of the men and accoutrements can and must be reduced, but as long as the present system lasts, this drag upon the horses is always to be taken into account whenever we judge of the capabilities of exertion and endurance of cavalry. Heavy cavalry, composed of strong but, if possible, comparatively light men, on strong horses, must act principally by the force of a well-closed, solid charge. This requires power, endurance, and a certain physical weight, though not as much as would render it unwieldy. There must be speed in its movements, but no more than is compatible with the highest degree of order. Once formed for the attack, it must chiefly ride straight forward; but whatever comes in its path must be swept away by its charge. The riders need not be, individually, as good horsemen as those of light cavalry; but they must have full command over their horses, and be accustomed to ride straight forward and in a well-closed mass. Their horses, in consequence, must be less sensible to the leg, nor should they have their haunches too much under them; they should step out well in their trot, and be accustomed to keep well together in a good, long hand gallop. Light cavalry, on the contrary, with nimbler men and quicker horses, has to act by its rapidity and ubiquity. What it lacks in weight must be made up by speed and activity. It will charge with the greatest vehemence; but when preferable, it will seemingly fly in order to fall upon the enemy's flank by a sudden change of front. Its superior speed and fitness for single combat render it peculiarly fit for pursuit. Its

chiefs require a quicker eye and a greater presence of mind than those of heavy horse. The men must be, individually, better horsemen; they must have their horses perfectly under control, start from a stand into a full gallop, and again stop in an instant; turn quick, and leap well; the horses should be hardy and quick, light in the mouth, and obedient to the leg, handy at turning, and especially broken in for working at a canter, having their haunches well under them. Beside rapid flank and rear attacks, ambuscades, and pursuit, the light cavalry has to do the greater part of the outpost and patrolling duty for the whole army; aptness for single combat, the foundation of which is good horsemanship, is therefore one of its principal requirements. In line, the men ride less close together, so as to be always prepared for changes of front and other evolutions.—The English have nominally 13 light and 18 heavy regiments (dragoons, hussars, lancers; the 2 regiments of life-guards alone are cuirassiers); but in reality all their cavalry, by composition and training, are heavy cavalry, and little different in the size of men and horses. For real light cavalry service they have always used foreign troops—Germans in Europe, native irregulars in India. The French have 8 kinds: light cavalry hussars and chasseurs, 174 squadrons; line cavalry, lancers and dragoons, 120 squadrons; reserve cavalry, 78 squadrons, cuirassiers and carabineers. Austria has 96 squadrons of heavy cavalry, dragoons and cuirassiers; and 192 squadrons of light, hussars and lancers. Prussia has, of the line, 80 squadrons of heavy horse, cuirassiers and lancers; and 72 squadrons of light horse, dragoons and hussars; to which may be added, in case of war, 186 squadrons of lancers of the first levy of the landwehr. The second levy of the landwehr cavalry will scarcely ever be formed separately. The Russian cavalry consists of 160 heavy squadrons, cuirassiers and dragoons; and 804 light squadrons, hussars and lancers. The formation of the dragoon corps for alternate mounted and infantry duty has been abandoned, and the dragoons incorporated with the heavy cavalry. The real light cavalry of the Russians, however, are the Cossacks, of whom they always have more than enough for all the outpost, reconnoitring, and irregular duties of their armies. In the U. S. army there are 2 regiments of dragoons, 1 of mounted riflemen, and 2 styled cavalry; all of which regiments, it has been recommended, should be called regiments of cavalry. The U. S. cavalry is really a mounted infantry.—The tactical unity in cavalry is the squadron, comprising as many men as the voice and immediate authority of one commander can control during evolutions. The strength of a squadron varies from 100 men (in England) to 200 men (in France); those of the other armies also being within these limits. Four, 6, 8, or 10 squadrons form a regiment. The weakest regiments are the English (400 to 480 men); the strongest the Austrian light horse (1,600

men). Strong regiments are apt to be unwieldy; too weak ones are very soon reduced by a campaign. Thus the British light brigade at Balaklava, not 2 months after the opening of the campaign, numbered in 5 regiments of 2 squadrons each scarcely 700 men, or just half as many as one Russian hussar regiment on the war footing. Peculiar formations are: with the British the troop or half squadron, and with the Austrians the division or double squadron, an intermediate link which alone renders it possible for one commander to control their strong regiments of horse.—Until Frederic the Great, all cavalry was formed at least 3 deep. He first formed his hussars, in 1743, 2 deep, and at the battle of Rossbach had his heavy horse formed the same way. After the 7 years' war this formation was adopted by all other armies, and is the only one now in use. For purposes of evolution the squadron is divided into 4 divisions; wheeling from line into open column of divisions, and back into line from column, form the chief and fundamental evolution of all cavalry manoeuvres. Most other evolutions are only adapted either for the march (the flank march by threes, &c.), or for extraordinary cases (the close column by divisions or squadrons). The action of cavalry in battle is eminently a hand-to-hand encounter; its fire is of subordinate importance; steel—either sword or lance—is its chief weapon; and all cavalry action is concentrated in the charge. Thus the charge is the criterion for all movements, evolutions, and positions of cavalry. Whatever obstructs the facility of charging is faulty. The impetus of the charge is produced by concentrating the highest effort both of man and horse into its crowning moment, the moment of actual contact with the enemy. In order to effect this, it is necessary to approach the enemy with a gradually increasing velocity, so that the horses are put to their full speed at a short distance from the enemy only. Now the execution of such a charge is about the most difficult matter that can be asked from cavalry. It is extremely difficult to preserve perfect order and solidity in an advance at increasing pace, especially if there is much not quite level ground to go over. The difficulty and importance of riding straight forward is here shown; for unless every rider rides straight to his point, there arises a pressure in the ranks, which is soon rolled back from the centre to the flanks, and from the flanks to the centre; the horses get excited and uneasy, their unequal speed and temper comes into play, and soon the whole line is straggling along in any thing but a straight alignment, and with any thing but that closed solidity which alone can insure success. Then, on arriving in front of the enemy, it is evident that the horses will attempt to refuse running into the standing or moving mass opposite, and that the riders must prevent their doing so; otherwise the charge is sure to fail. The rider, therefore, must not only

have the firm resolution to break into the enemy's line, but he must also be perfectly master of his horse. The regulations of different armies give various rules for the mode of advance of the charging cavalry, but they all agree in this point, that the line, if possible, begins to move at a walk, then trot, at from 300 to 150 yards from the enemy center, gradually increasing to a gallop, and at from 20 to 30 yards from the enemy full speed. All such regulations, however, are subject to many exceptions; the state of the ground, the weather, the condition of the horses, &c., must be taken into consideration in every practical case. If in a charge of cavalry against cavalry both parties actually meet, which is by far the most uncommon case in cavalry engagements, the swords are of little avail during the actual shock. It is the momentum of one mass which breaks and scatters the other. The moral element, bravery, is here at once transformed into material force; the bravest squadron will ride on with the greatest self-confidence, resolution, rapidity, *ensemble*, and solidity. Thus it is that no cavalry can do great things unless it has plenty of "dash" about it. But as soon as the ranks of one party are broken, the swords, and with them individual horsemanship, come into play. A portion at least of the victorious troop has also to give up its tactical formation, in order to mow with the sword the harvest of victory. Thus the successful charge at once decides the contest; but unless followed up by pursuit and single combat, the victory would be comparatively fruitless. It is this immense preponderance of the party which has preserved its tactical compactness and formation, over the one which has lost it, which explains the impossibility for irregular cavalry, be it ever so good and so numerous, to defeat regular cavalry. There is no doubt that so far as individual horsemanship and swordsmanship is concerned, no regular cavalry ever approached the irregulars of the nations of horse-warriors of the East; and yet the very worst of European regular cavalries has always defeated them in the field. From the defeat of the Huns at Chalons (451) to the sepooy mutiny of 1857, there is not a single instance where the splendid but irregular horsemen of the East have broken a single regiment of regular cavalry in an actual charge. Their irregular swarms, charging without concert or compactness, cannot make any impression upon the solid, rapidly moving mass. Their superiority can only appear when the tactical formation of the regulars is broken, and the combat of man to man has its turn; but the wild racing of the irregulars toward their opponents can have no such result. It has only been when regular cavalry, in pursuit, have abandoned their line formation and engaged in single combat, that irregulars, suddenly turning round and seizing the favorable moment, have defeated them; indeed, this stratagem has made up almost the whole of the tactics of irregulars against regulars, ever since the wars of the Parthians

and the Romans. Of this there is no better example than that of Napoleon's dragoons in Egypt, undoubtedly the worst regular cavalry then existing, which defeated in every instance the most splendid of irregular horsemen, the Mamelukes. Napoleon said of them, 2 Mamelukes were decidedly superior to 3 Frenchmen; 100 Frenchmen were a match for 100 Mamelukes; 800 Frenchmen generally beat 800 Mamelukes; 1,000 Frenchmen in every instance defeated 1,500 Mamelukes. However great may be the superiority in a charge of that body of cavalry which best preserves its tactical formation, it is evident that even this body must, after the successful charge, be comparatively disordered. The success of the charge is not equally decisive on every point; many men are irretrievably engaged in single combat or pursuit; and it is comparatively but a small portion, mostly belonging to the second rank, which remains in some kind of line. This is the most dangerous moment for cavalry; a very small body of fresh troops, thrown upon it, would snatch the victory from its hands. To rally quickly after a charge is therefore the criterion of a really good cavalry, and it is in this point that not only young but also otherwise experienced and brave troops are deficient. The British cavalry, riding the most spirited horses, are especially apt to get out of hand, and have almost everywhere suffered severely for it (e. g., at Waterloo and Balaklava). The pursuit, on the rally being sounded, is generally left to some divisions or squadrons, specially or by general regulations designated for this service; while the mass of the troops re-form to be ready for all emergencies. For the disorganized state, even of the victors, after a charge, is inducement enough to always keep a reserve in hand which may be launched in case of failure in the first instance; and thus it is that the first rule in cavalry tactics has always been, never to engage more than a portion of the disposable forces at a time. This general application of reserves will explain the variable nature of large cavalry combats, where the tide of victory ebbs and flows to and fro, either party being beaten in his turn until the last disposable reserves bring the power of their unbroken order to bear upon the disordered, surging mass, and decide the action. Another very important circumstance is the ground. No arm is so much controlled by the ground as cavalry. Heavy, deep soil will break the gallop into a slow canter; an obstacle which a single horseman would clear without looking at it, may break the order and solidity of the line; and an obstacle easy to clear for fresh horses will bring down animals that have been trotted and galloped about without food from early morning. Again, an unforeseen obstacle, by stopping the advance and entailing a change of front and formation, may bring the whole line within reach of the enemy's flank attacks. An example of how cavalry attacks should not be made, was Murat's great charge at the battle of Leipsic. He formed 14,000 horsemen into one deep mass, and advanced

on the Russian infantry which had just been repulsed in an attack on the village of Wachen. The French horse approached at a trot; about 600 or 800 yards from the allied infantry they broke into a canter; in the deep ground the horses soon got fatigued, and the impulse of the charge was spent by the time they reached the squares. Only a few battalions which had suffered severely were ridden over. Passing round the other squares, the mass galloped on through the second line of infantry, without doing any harm, and finally arrived at a line of ponds and morasses which put a stop to their progress. The horses were completely blown, the men in disorder, the regiments mixed and uncontrollable; in this state two Prussian regiments and the Cossacks of the guard, in all less than 2,000 men, surprised their flanks and drove them all pell mell back again. In this instance there was neither a reserve for unforeseen emergencies, nor any proper regard for pace and distance; the result was defeat.—The charge may be made in various formations. Tacticians distinguish the charge *en muraille*, when the squadrons of the charging line have none or but very small intervals between each other; the charge with intervals, where there are from 10 to 20 yards from squadron to squadron; the charge *en échelon*, where the successive squadrons break off one after the other from one wing, and thus reach the enemy not simultaneously but in succession, which form may be much strengthened by a squadron in open column on the outward rear of the squadron forming the first *échelon*; finally, the charge in column. This last is essentially opposed to the whole of the former modes of charging, which are all of them but modifications of the line attack. The line was the general and fundamental form of all cavalry charges up to Napoleon. In the whole of the 18th century, we find cavalry charging in column in one case only, i. e. when it had to break through a surrounding enemy. But Napoleon, whose cavalry was composed of brave men but bad riders, had to make up for the tactical imperfections of his mounted troops by some new contrivance. He began to send his cavalry to the charge in deep columns, thus forcing the front ranks to ride forward, and throwing at once a far greater number of horsemen upon the selected point of attack than could have been done by a line attack. The desire of acting with masses, during the campaigns succeeding that of 1807, became with Napoleon a sort of monomania. He invented formations of columns which were perfectly monstrous, and which, happening to be successful in 1809, were adhered to in the later campaigns, and helped to lose him many a battle. He formed columns of whole divisions either of infantry or of cavalry, by ranging deployed battalions and regiments one behind the other. This was first tried with cavalry at Eckmühl, in 1809, where 10 regiments of cuirassiers charged in column, 2 regiments deployed in front, 4 similar lines following at distances of

about 60 yards. With infantry, columns of whole divisions, one battalion deployed behind the other, were formed at Wagram. Such manœuvres might not be dangerous against the slow and methodical Austrians of the time, but in every later campaign, and with more active enemies, they ended in defeat. We have seen what a pitiable end the great charge of Murat at Wachau, in the same formation, came to. The disastrous issue of D'Erlon's great infantry attack at Waterloo was caused by its being made with this formation. With cavalry the monster column appears especially faulty, as it absorbs the most valuable resources into one unwieldy mass, which, once launched, is irretrievably out of hand, and, whatever success it may have in front, is always at the mercy of smaller bodies well in hand that are thrown on its flanks. With the materials for one such column, a second line and one or two reserves might be prepared, the charges of which might not have such an effect at first, but would certainly by their repetition ultimately obtain greater results with smaller losses. In most services, indeed, this charge in column has either been abandoned, or it has been retained as a mere theoretical curiosity, while for all practical purposes the formation of large bodies of cavalry is made in several lines at charging intervals, supporting and relieving each other during a prolonged engagement. Napoleon, too, was the first to form his cavalry into masses of several divisions, called corps of cavalry. As a means of simplifying the transmission of commands in a large army, such an organization of the reserve cavalry is eminently necessary; but when maintained on the field of battle, when these corps had to act in a body, it has never produced any adequate results. In fact, it was one of the main causes of that faulty formation of monster columns which we have already mentioned. In the present European armies, the cavalry corps is generally retained, and in the Prussian, Russian, and Austrian services, there are even established normal formations and general rules for the action of such a corps on the field of battle, all of which are based on the formation of a first and second line and a reserve, together with indications for the placing of the horse artillery attached to such a body.—We have hitherto spoken of the action of cavalry so far only as it is directed against cavalry. But one of the principal purposes for which this arm is used in battle, in fact its principal use now-a-days, is its action against infantry. We have seen that in the 18th century infantry, in battle, scarcely ever formed square against cavalry. It received the charge in line, and if the attack was directed against a flank, a few companies wheeled back, *en potence*, to meet it. Frederic the Great instructed his infantry never to form square except when an isolated battalion was surprised by cavalry; and if in such a case it had formed square, "it may march straight against the enemy's horse, drive them away, and, never heeding their attacks, proceed to its

destination." The thin lines of infantry in those days met the cavalry charge with full confidence in the effect of their fire, and indeed repelled it often enough; but where they once got broken, the disaster was irreparable, as at Hohenfriedberg and Zorndorf. At present, when the column has replaced the line in so many cases, the rule is that infantry always, where it is practicable, form square to receive cavalry. There are indeed plenty of instances in modern wars where good cavalry has surprised infantry in line and had to fly from its fire; but they form the exception. The question now is, whether cavalry has a fair chance of breaking squares of infantry. Opinions are divided; but it appears to be generally admitted that, under ordinary circumstances, a good, intact infantry, not shattered by artillery fire, stands a very great chance against cavalry, while with young foot soldiers, who have lost the edge of their energy and steadiness by a hard day's fighting, by heavy losses and long exposure to fire, a resolute cavalry has the best of it. There are exceptions, such as the charge of the German dragoons at Garcia Hernandez (in 1812), where each of 8 squadrons broke an intact French square; but as a rule, a cavalry commander will not find it advisable to launch his men on such infantry. At Waterloo, Ney's grand charges with the mass of the French reserve cavalry on Wellington's centre, could not break the English and German squares, because these troops, sheltered a good deal behind the crest of the ridge, had suffered very little from the preceding cannonade, and were almost all as good as intact. Such charges, therefore, are adapted for the last stage of a battle only, when the infantry has been a good deal shattered and exhausted both by actual engagement and by passivity under a concentrated artillery fire. And in such cases they act decisively, as at Borodino and Ligny, especially when supported, as in both these cases, by infantry reserves.—We cannot enter here into the various duties which cavalry may be called upon to perform on outpost, patrolling, and escorting service, &c. A few words on the general tactics of cavalry, however, may find a place. Infantry having more and more become the main stay of battles, the manœuvres of the mounted arm are necessarily more or less subordinate to those of the former. And as modern tactics are founded upon the admixture and mutual support of the 3 arms, it follows that for at least a portion of the cavalry, all independent action is entirely out of the question. Thus the cavalry of an army is always divided into 2 distinct bodies: divisional cavalry and reserve cavalry. The first consists of horsemen attached to the various divisions and corps of infantry, and under the same commander with them. In battle, its office is to seize any favorable moments which may offer themselves to gain an advantage, or to disengage its own infantry when attacked by superior forces. Its action is naturally limited, and its strength is not sufficient

to act any way independently. The cavalry of reserve, the mass of the cavalry with the army, acts in the same subordinate position toward the whole infantry of the army as the divisional cavalry does toward the infantry division to which it belongs. Accordingly, the reserve cavalry will be held in hand till a favorable moment for a great blow offers itself, either to repel a grand infantry or cavalry attack of the enemy, or to execute a charge of its own of a decisive nature. From what has been stated above, it will be evident that the proper use of the cavalry of reserve is generally during the latter stages of a great battle; but then it may be and often has been decisive. Such immense successes as Seydlitz obtained with his horse are completely out of the question now; but still, most great battles of modern times have been very materially influenced by the part cavalry has played in them. But the great importance of cavalry lies in pursuit. Infantry supported by artillery need not despair against cavalry so long as it preserves its order and steadiness; but once broken, no matter by what cause, it is a prey to the mounted men that are launched against it. There is no running away from the horses; even on difficult ground, good horsemen can make their way; and an energetic pursuit of a beaten army by cavalry is always the best and the only way to secure the full fruits of the victory. Thus, whatever supremacy in battles may have been gained by infantry, cavalry still remains an indispensable arm, and will always remain so; and now, as heretofore, no army can enter the lists with a fair chance of success unless it has a cavalry that can both ride and fight.

CAVAN, the southernmost county of the province of Ulster, Ireland; area, 747 sq. m.; pop. in 1851, 174,071. The soil is wet and marshy, but with drainage it is rendered productive. The mountainous districts, which include a considerable part of the county, are barren. Coal, iron, lead, and copper have been discovered; marl, fuller's earth, potter's and brick clays are always plentiful. The linen trade is carried on in Cavan, but not at present to any great extent. Cavan was anciently called *Breifne (Brenny)*, and was part of the territory of O'Rourke, the Irish chief, the seduction of whose wife by Dermot MacMurrough was the immediate cause of the English invasion. It was first made shire-ground toward the close of the 16th century. The county was divided into baronies among the native possessors, 5 baronies falling to the lot of the O'Reilly family. The O'Reillys having forfeited their possessions by rebellion at the beginning of the 17th century, Cavan reverted to the British crown. It is now divided into 8 baronies, and returns 2 members to the British parliament.—The county town, also called Cavan, is on the Dublin and Galway railway, 85½ m. from the former city. Pop. in 1851, 8,254, beside several thousand in the poor houses and other public establishments. Petty and quarter sessions, annual fairs, and a

weekly market, are held in the town. It contains a fine parish church, Presbyterian and Methodist meeting houses, a fever hospital, an infirmary, a royal endowed school, a county gaol and court-house, barracks, and a public pleasure-ground, bequeathed to the town by the late Lady Fernham.

CAVANAS, or CABANAS, a port of Cuba, on the N. W. coast of the island, 88 m. S. W. of Havana; lat. 28° 5' N., long. 82° 55' W. It has a fine deep bay, capable of containing 100 vessels, and is defended by a battery of 5 guns, having in its centre a martello tower, with 1 gun. The entrance to the bay lies between 2 extensive reefs. Some of the most celebrated specimens of Havana cigars bear the name of Cabanas.

CAVANILLES, ANTONIO JOSÉ, a Spanish naturalist, born at Valencia, Jan. 16, 1745, died in Madrid, May, 1804. Educated among the Jesuits, and having embraced the ecclesiastical profession, he was chosen tutor to the sons of the duke del Infantado, Spanish ambassador in France, and accompanied them to Paris, where he remained for 12 years. He became acquainted with the botanist Jussieu, and devoting his attention to the study of botany, he officiated, after his return to Madrid, from 1801 to the time of his death, as keeper of the royal gardens. His works are numerous; among them are "Elementary Principles of Botany;" a "Botanical Dissertation on the Sida, and other Plants having an affinity with it," 2 vols. 4to. with plates; and a "History of the Kingdom of Valencia," 2 vols. 8vo.

CAVATINA, in music, a short air without a repeat, often inserted in recitative for the purpose of affording an effective relief.

CAVE, EDWARD, an English printer and bookseller, born at Newton, Warwickshire, Feb. 29, 1691, died Jan. 10, 1754. He is chiefly known as the founder of the "Gentleman's Magazine," and as the friend of Dr. Johnson, who attended his death-bed, and wrote his life. The shop in which he did business still stands at St. John's gate, Clerkenwell, London.—WILLIAM, an English scholar and divine, born at Pickwell, Leicestershire, Dec. 30, 1687, died at Windsor in Aug. 1718. He was educated for the ministry at Cambridge, and subsequently held several cures. He was chaplain to Charles II., who made him canon of Windsor. Having selected as his residence the quiet vicarage of Isleworth, Middlesex, he devoted his life to researches into the history of the church. He produced a great number of works, the most important of which are his "Lives of the Fathers" (*Ecclesiastical*), "Lives of the Apostles," and "Primitive Christianity." His style is concise, simple, and easy, and his sentiments so liberal that he has been accused of Socinianism. A monument in Islington church marks his burial place.

CAVE, or CAVERN, a hollow place under ground, generally with an opening on the surface, or in the face of a rock or hill. The former term is sometimes applied to an artificial



excavation. These subterranean chambers, of various form and size, found in nearly all parts of the world, of fantastic architecture, dark and gloomy in appearance, and often of unknown extent, are well calculated to awaken the curiosity and excite the imagination. The priests of antiquity, for the purpose of producing an effect on the minds of the ignorant populace, localized in caverns their false divinities. The original Delphian oracles, revered by the Greeks, and resorted to by the monarchs of the ancient world, were delivered by a priestess seated at the mouth of a cave, who pretended to be inspired with a knowledge of future events. The primitive inhabitants of northern Europe selected caves as appropriate places for their barbarous rites. Among these is Thor's cave, in the limestone district of Derbyshire, as Darwin describes it:

The blood-smear'd mansion of gigantic Thor.

Greater use has been made of caverns in India than elsewhere for religious purposes, and at Elephanta, Salsette, and Ellora, beautiful temples are constructed, as is supposed, from natural openings in the rocks. At an early period, before the art of building was practised, the inhabitants of the earth probably dwelt in caves, and they are used as habitations, during the winter, at this day in some countries. The ancient city of Petra consists of artificial caves cut in the sandstone rock, which might have served as dwellings. We read in Genesis xix. that Lot "dwelt in a cave, he and his two daughters." The practice of burying the dead in caves seems to have been the origin of catacombs. Nearly all the great caves of the world are in limestone rocks, of comparatively recent date. In the primary formations, these rocks being of limited extent, the caves, though numerous, are small. They are produced by the action of the water, which, running in little streams through the strata, and carrying with it carbonic acid gas (by which limestone is rendered soluble), particles of the rock are taken up and removed. Thus the rock is hollowed out more rapidly than others of a softer nature are excavated by any mechanical action; and the work goes silently and steadily on through long geological periods, until subterranean passages of wonderful beauty and extent are formed. In Sweden and Norway the granite presents caves of extraordinary size; that of Marienstadt, which has been only partially explored, is most prominent. In the neighborhood of Quito caverns are found in modern porphyry, and in the Isle of France in lava. In the lava of Iceland is one of enormous extent, that of Gurtshellir, 40 feet in height, 50 in breadth, and nearly a mile in length. Humboldt has furnished a great amount of information respecting the cavities in the earth's surface, their differences in form and origin. He divides them into 3 distinct classes. The 1st appear in the form of cracks or fissures, having only one opening, and penetrating far into the mountain. The 2d are distinguished from these by reaching the daylight at both ends. The 3d,

and most frequent form of caverns, is that in which there is a succession of apartments of similar appearance connected with each other. The caverns of Agtelek in Hungary, and Adelsberg in Carniola, are among the most remarkable in Europe. The latter presents a magnificent and imposing appearance, ornamented with vast numbers of pillars of almost transparent whiteness, and glittering stalactites hanging from its roof. The proteus, a strange species of reptile, in shape between a lizard and an eel, is found here, which lives indiscriminately in air or water, on the rock or in mud, and to which the presence of light is entirely unnecessary. Humboldt gives an interesting account of the cave of Guacharo in Venezuela, named for a species of nocturnal birds which make it their abode, among the most inaccessible precipices of the mountains, the entrance being through a deep ravine. Following the course of the subterranean stream, he found the banks, to his surprise, adorned for the distance of many yards with a luxuriant growth of trees and plants. The clamor of the birds, which congregate here in vast numbers, made the dark and gloomy recesses of the cave frightful with their hoarse discordant notes, which so appalled the Indian guides, that they refused to proceed, and Humboldt was thus compelled to retrace his steps. A singular atmospheric phenomenon in connection with some caves has been observed, and has attracted the attention of scientific men. A blast of cold air pours through the opening, so strong in several instances as to extinguish a candle. When the temperature without is higher than that within the cave, the current of air sets out, and when the reverse is the case the current is reversed. But if the prevailing current is outward, it is probably owing to air carried into the cave by falling water, and set free as this dashes over the rocks in its course. On this principle the blowing machine called the *ventilateur du Hartz* is constructed, for furnishing supplies of air for mechanical purposes. (See BLOWING MACHINES.) Sir Roderic Murchison, making some geological researches in Russia, met with a freezing cave near Iletaki, which is destitute of ice in the winter, but is partially filled with it during the summer. Caverns in various parts of the world yield nitre, which is found incrustated upon their walls. It is detached with picks, and is abundant in Kentucky; this state furnished from its caves a large portion of the nitre consumed in the United States during the last war with England. The interiors of many European caves present another feature of interest and importance, viz., the bones of extinct species of animals, on which account they have been sometimes called bone caverns. Dr. Buckland, examining a cave discovered in 1891, at Kirkstall, in Yorkshire, found an immense quantity of bones, some of them in a good state of preservation. The animals to which they belonged were the bear, tiger, lion, hippopotamus, and many others; those of the hyena were most abund-

ant; all were of extinct species. It is supposed that the Kirkdale cave was for many years a den inhabited by hyenas, some great inundation at last destroying the whole race. Human bones have sometimes been found in these receptacles, but this may be explained by the common practice of mankind in all ages to bury their dead in such repositories, and by the fact that very many of these caverns, as has been stated above, have been occupied as dwellings by ancient and barbarous nations.—The largest known cave in the world is the Mammoth cave in Kentucky. It is situated in Edmondson co., near Green river, 180 m. S. S. W. of Lexington, on the road to Nashville. According to the statements of explorers, it has been penetrated to the distance of 10 m., but these are probably exaggerated, as the windings of the cave are so tortuous, and the progress of travellers so much obstructed, and necessarily very slow, that they may be easily deceived in this respect. Stalactites of gigantic size and fantastic form are seen here, though none so brilliant and beautiful as adorn the interiors of many other caves. Nitre abounds. A river navigable by boats affords a novel means for exploring these subterranean recesses. Few forms of life are found within this cave. Bats and rats are abundant, and there are several species of insects. Two varieties of fish only have been observed: one of these is the eyeless fish; the other, though with eyes, is entirely blind. After the Mammoth cave, that most worthy of notice in the United States, is Weir's cave, named for its discoverer. It is situated in the co. of Augusta, near Port Republic, 17 m. N. E. of Staunton, Va. Though inferior in size to the Mammoth cave, being but 2,500 feet in length, its rare beauty has given to it an almost equal celebrity. Its spacious apartments, extending to the distance of  $\frac{1}{2}$  m., adorned with their brilliant stalactites, are said to equal the enchanted palaces described in eastern story. A cave has recently been discovered in Marion co., Mo., which promises to rival all others in extent and beauty. It is known by the name of the Big Saltpetre cave. Large chambers and long galleries succeed each other; their height varying from 100 to 80 feet. The dropping water has formed the most beautiful stalactites, and the ceiling is decorated with groups of spar in a variety of figures. A number of caves have been described in New York. The most interesting of these is Ball's cave at Schoharie. It has been explored about  $\frac{3}{4}$  of a mile. Stalactites and stalagmites have been found in it of the purest white. It contains 2 lakes, the surface of the one 10 feet above the level of the other.

CAVEAT (Lat. *cavere*, to beware), a formal notice or caution given by a party in interest to a court, judge, or public officer against the performance of certain acts, such as permitting a will to be proved, granting letters of administration, or patents for inventions, or for lands. Its object and effect are to stay the

proceedings, in order to allow an interested party an opportunity to contest the application about to be made.

CAVEDONE, JACOPO, an Italian painter, born in Sassuolo, in the duchy of Modena, in 1577, died in Bologna in 1660. He was a pupil of Annibale Carracci. His best works are the "St. Alo," in the church of the Mendicanti at Bologna, the "Adoration of the Magi," the "Four Doctors," and the "Last Supper." Out of Italy he is frequently mistaken for Annibale Carracci.

CAVENDISH, HENRY, an English philosopher, born at Nice, Oct. 10, 1731 (during a visit of his mother, Lady Charles Cavendish), died in London, Feb. 24, 1810. He was a gentleman of great wealth, and a man of high attainments in chemistry and in general physics. He was the discoverer of the composition of water and of nitric acid, and proved that the electric spark will generate nitric acid from common air. He measured the density of the earth by direct comparison with balls of lead, and improved the modes of dividing astronomical instruments. His highest glory consists in his being the first chemical experimenter and discoverer in many important branches of that science. His writings may be all found in the "Philosophical Transactions" for 1766, '67, '71, '73, '76, '77, '83, '84, '85, '86, '88, '90, '92, '98, and 1809. Distinguished in science for the accuracy of his experiments, the largeness of his views, and the brilliancy of his discoveries, he was no less distinguished in private life for the excellence of his character, the regularity and simplicity of his habits, and his liberality toward other men of science.

CAVENDISH, or CANDISH, THOMAS, an English navigator of the 16th century. He was the son of a gentleman of good estate, residing at Trimley St. Martin in Suffolk, inherited his father's property, but becoming light in purse by living at court, he engaged in a predatory excursion against the Spanish American colonies, fitting out 3 vessels respectively of 120, 60, and 40 tons. This expedition started July 21, 1586, and entered the straits of Magellan Jan. 6, 1587. They were 83 days in clearing the straits, spending some time in examining the coast. On the Pacific ocean shore they burnt Payta, Acapulco, and other towns, and finally captured the Spanish galleon, the St. Anna, a vessel of 700 tons, loaded with a valuable cargo, and 122,000 Spanish dollars. Satisfied with this golden success, Cavendish started from California, crossed the Pacific to the Ladrone islands, through the Indian archipelago and straits of Java, around the cape of Good Hope, reaching England Sept. 9, 1588. In Aug. 1591 he started again, but he experienced bad weather and sickness, his crew grew mutinous, and he died either on the coast of South America, or on his way home, in 1593.

CAVERY, or CAUVRY (anc. *Chaleris*), a river of southern India, rises in the British district of Coorg, among the Coorg hills, near the coast of

Malabar, 4,000 feet above the level of the sea, in lat.  $12^{\circ} 25' N.$ , long.  $75^{\circ} 34' E.$  It flows in a circuitous course S. E., dividing in the vicinity of Trichinopoly into several branches (the principal of which is the Coleroon river, 92 m. long), which descend in separate falls of 200 and 800 feet, and enter the sea by numerous mouths in the province of Tanjore. At Sissammudram one branch of it is crossed by a bridge 1,000 feet in length and 28 feet in height, which was erected in 1820. The principal tributaries of the Caverry are the Henna-vutty, the Lechman-Teert, the Oubbany, the Shimskas, the Arkavati, the Bhowani, the Noyal, the Ambrawutty, and many other less important rivers. In connection with the branches of the Caverry, extensive systems of irrigation, by means of canals and embankments, have been recently constructed, the effects of which have been to render Tanjore one of the most fertile provinces of the presidency of Madras. The whole course of the Caverry is about 470 m., and it is navigable only for small boats. The craft in use are circular baskets, from 9 to 14 feet in diameter, covered with buffalo leather. In these produce is brought down the river, but as the violence of the stream makes upward navigation impossible, they are taken to pieces and the leather taken back on the heads of the crew.

CAVERYPARK, or CAUVERTPAUK, a town of British India, in the presidency of Madras, district of N. Arcot, on the road from Madras to Arcot, lat.  $12^{\circ} 54' N.$ , long.  $79^{\circ} 38' E.$  A victory was gained here by the British over the French and their allies in 1754. The town is a poor and meanly built place, but contains a tank 8 m. long and 8 m. broad, which is perhaps the finest work constructed for irrigation throughout southern India.

CAVI, a picturesque Italian town, on the slopes of the Monte di Mentorella, in the Pontifical States, 8 m. from Palestrina; pop. about 2,000. It was built by the Colonnas, who held it as early as the 11th century, and is memorable for a treaty of peace signed here in 1557 between the duke of Alva and the Caraffeschi. On the ancient road, which was probably the line of communication between Palestrina and Anagni, is the battle-field on which C. Aquilius Tuscus defeated the Hernici, 487 B. C.

CAVIANA, an island of Brazil, 85 m. long and 20 m. wide. It lies in the N. mouth of the Amazon, under the equator; is level, fertile, and well stocked with cattle. The small town of Roberdello is on its S. E. side.

CAVIARE, a kind of food prepared from the roes of large fish, especially the sturgeon. It is chiefly made in Russia, which country monopolizes this branch of commerce. From Astrakhan alone, 80,000 bbls. have been exported in a single year. The process of manufacturing consists in thoroughly cleaning the roe from its membranes and rubbing it in the hand to a fine pulp. Salt is then well mixed in, and the liquor pressed out. It is next dried and

packed in kegs for sale. An inferior kind is made into small thin cakes. It is much used during seasons of fast in Italy and Russia, being eaten on bread with oil and vinegar.

CAVITE, a province of the island of Luzon, and one of the 35 which constitute the Spanish Philippines. It is bounded N. by Tondo, of which Manila is the capital, E. by Laguna de Bay, S. by Batangas, and W. by the bay of Manila. Area 489 sq. m.; pop. 185,000. This province has a fertile soil, which is well irrigated by the numerous streams which flow from the slopes of the southern Cordillera, which extend through the western portion. Its chief products are rice, coffee, pepper, cocoa, and hemp, which are largely exported. A high degree of civilization exists among the mixed races which have come from all parts of Luzon and the Philippines to people this province. In the district of Marigondo, near the S. W. extremity of the province, there is a native Christian settlement, established by natives of the Moluccas, who accompanied the Portuguese Jesuit missionaries that were expelled from Amboyna and Ternate in 1658. There are about 7,000 Chinese mestizos, who are the only pagans in the province.—The new town of this name contains the great naval arsenal of Manila, which has been rendered by fortifications a place of great strength. It is about 15 m. distant from the city of Manila, with which it is connected by an excellent military road. A low tongue of land running for about 5 m. into the bay of Manila, shelters the harbor of Cavite from every wind except the N. E. The anchorage is good and secure at all seasons except during the changes of the monsoons, when the destructive typhoon takes place. In 1881, during one of these terrific wind storms, a Spanish sloop of war of 600 tons burden was driven from its anchorage, and cast upon the ramparts of the town. The population of the town, outside of the government establishments, does not exceed 2,000 persons. The old town, or Cavite el Viejo, is situated 4 m. S. of the arsenal, and contains 10,000 inhabitants.

CAVOLINI, FILIPPO, in Latin CAULINUS, an Italian naturalist, professor of zoology in the university of Naples, born in Naples in 1754, died there March 25, 1810. He was educated as a lawyer, but also studied physics and chemistry, and devoted himself to the study of marine polypi, in which he soon became famous. He lost his property by the French invasion of 1806, but was recompensed by being elected professor of natural history and member of the academy of sciences. Soon afterward he died of fever, caused by the upsetting of a boat.

CAVOUR, CAMILLO DI, count, a Sardinian statesman, born in Turin, July 14, 1809, and now (1858) president of the council of ministers, minister for foreign affairs, and finance minister, in the government of the kingdom of Sardinia. His father was ennobled by the late king Charles Albert, and left him a considerable fortune, acquired by trade. He first

became known in public life in 1847 as one of the founders of and contributors to *Il Risorgimento*, a journal of liberal politics. Count Cavour superintended the politico-economical department of this paper, and gave it a strong bias in favor of free trade. He entered the Sardinian chamber of deputies in 1849, and took his seat among the members of the moderate opposition. On the death of Santa Rosa, minister of agriculture and commerce, these portfolios were conferred upon Count Cavour, to which in 1851 was added the department of the finances. In 1852 he succeeded the marquis d'Azeglio as president of the council, an office which he has filled ever since, with the exception of a short period of retirement in 1855. He obtained a European reputation by the course he took in opposing the pope and the ultramontanes at home, and in joining France, Great Britain, and Turkey against Russia. The manifesto of Sardinia on this occasion was drawn up and signed by Count Cavour (Jan. 10, 1855). In conjunction with the marquis Villamarina, he represented Sardinia in the peace conferences held at Paris in the spring of 1856. During the sittings of this conference, he took occasion to protest against the continued occupation of the pontifical states by foreign troops, and to represent the necessity of inducing the king of Naples to moderate his system of government. Not less famous did he become from the part he took in carrying through the Sardinian parliament the measure for suppressing convents and monasteries, and secularizing their estates, which drew down upon him, and all who participated in the enactment and execution of this statute, the major excommunication of the pope, and the hostility of a large portion of the Sardinian clergy and their supporters in parliament. Despite the warm opposition of many powerful interests which his reforming tendencies have offended, the ministry of Count Cavour has been sustained by the masses of the people. After the attempt upon the life of the emperor of the French (Jan. 14, 1858), Count Cavour acceded to the requests of the French minister of foreign affairs, and proposed and carried through the legislature an act in reference to political refugees and conspirators against the life of foreign sovereigns, which was denounced by the democratic members of the Sardinian chamber of deputies. The act conceded a special jury of 200, to be designated by the mayor and municipal council of the town in which the court of appeal is established, for the trial of conspirators against foreign potentates. On the various questions which have arisen between the contracting parties concerning the construction of the European treaty of peace of 1856, and concerning the settlement of the Danubian principalities, the ministry of Count Cavour have supported French views, and have uniformly set themselves in opposition to the policy of Austria. The admirers of Count Cavour claim that he is the first of living Ital-

ian statesmen, and that to him more than to any other individual are Sardinia and Italy indebted for the successful institution of parliamentary government, religious liberty, and an unshackled press on the south side of the Alps. In Aug. 1858, the Sardinian minister had an interview with the Prussian premier at Baden, which was supposed to augur well for the future understanding between the two countries, and in August he attended the fêtes at Orléans.

CAVY, a mammal of the order *rodentia*, family *hystricida*, sub-family *cavinia* (Waterhouse), and genera *dolichotis* and *cavia*. This sub-family is exclusively South American; the molar teeth are  $\frac{1}{2}$ - $\frac{1}{2}$ , without roots, those of the upper jaw converging and nearly meeting in front, incisors short, 4 toes on the fore feet, and only 3 on the hind, and (what is exceptional in rodents) without clavicles; they do not use the fore feet to convey food to the mouth. The cavies have been generally associated with the agoutis, and classed under the section *subungulata* of Illiger, erroneously in the opinion of Mr. Waterhouse, though the two groups approach each other in many respects, as in having the same number of toes, and in being almost or entirely destitute of a tail. In some members of the sub-family, and probably in all, the fauces, or entrance to the throat, form a funnel-shaped cavity, opening backward into the pharynx by a small aperture capable of admitting only very finely chewed food; by the action of the muscles this conical cavity is made to pass over the epiglottis, preventing the entrance of the food into the windpipe; the stomach is simple, but the cæcum is large and complicated. The molar teeth of the upper jaw have the entering fold of enamel on the inner side, while in the lower it is on the outer side; the palatic portion of the skull in front of them is much contracted, and between them triangular, the posterior emargination being very deep, and exposing the anterior sphenoid bone; in the lower jaw a well-marked ridge extends along the outer side from the 1st molar, at first horizontally backward, but afterward curving upward to the condyloid portion, distinguishing them from all other rodents; the condyle is but little elevated above the crowns of the molars, and the coronoid process is extremely small, in this and other particulars resembling the tailless hares (*lagomys*). The genus *dolichotis* (Desm.) is characterized by long limbs; ears half as long as the head, pointed, broad at the base; tail very short, and curved upward; metatarsus clothed with hairs anteriorly, posteriorly with the heel naked; molars small, the 3 front upper and the 3 posterior lower divided by folds of enamel into 2 equal lobes, the last upper and the front lower being 8-lobed. The long legs, large ears, and distinct tail distinguish this from the genus *cavia*, of which the Guinea pig is a well-known example. The cavies approach the hares in their comparatively short incisor

teeth, the imperfect condition of the palate before alluded to, the narrow bodies of the sphenoid bones, and the small brain cavity; the skull, however, is not so large in its facial portion, and is more depressed, with much smaller incisive openings. Uniting the 2 groups of the true cavies and the hares, comes the typical species of the genus *dolichotis*, the Patagonian cavy (*D. patachonica*, Shaw). This animal is from 2½ to 8 feet in length, about 18 inches high at the shoulders, weighing from 20 to 86 lbs. when full grown. It inhabits the desert and gravelly plains of Patagonia, from about 48½° S. to 37½° S., on the Atlantic coast, and extending into La Plata as far as Mendoza, 33½° S. The fur is dense and crisp, gray on the upper parts of the head and body, yellowish rusty on the sides; chin, throat, and abdomen white; rump black, with a broad white band immediately above the tail; limbs rusty yellow, but grayish in front. It lives in burrows, but wanders occasionally to great distances from home in parties of 2 or 3; it runs much like the rabbit, though not very fast; it seldom squats like the hare, is very shy, and feeds by day; the eyes are protected from the sun by well-developed lashes; it produces 2 young at a birth, in its burrow; its flesh is white, but dry and tasteless. It has been generally mistaken by travellers for a hare, which it resembles in its legs, ears, and tail; the head is large, terminating in a blunt muzzle clothed with hairs; the upper lip is slightly notched; the mustaches are very long and black. The genus *cavia* (Klein) is characterized by short limbs and ears, by feet naked beneath, by molars nearly of equal size, each with 2 principal lobes. The genus presents 2 modifications of the molars: in one, the lobes are nearly equal, and the hinder lobe of the upper series has no distinct indenting fold of enamel; for this F. Cuvier has instituted the genus *cerodon*, which Waterhouse retains as a sub-genus; in the other (containing the Guinea pig), the hinder lobe is the larger, and in the upper series has a deep indenting fold of enamel on the outer side, and the corresponding half of the lower molar with a deep fold on the inner side. The following species belong to the sub-genus *cerodon*; those of *cavia* proper will be described under GUINEA PIG. The rock cavy (*C. rupestris*, Pr. Max.) inhabits the rocky districts of the interior of Brazil, in the higher parts of the river courses. The nails are short, obtuse, and projecting from large fleshy pads; the soft fur is of a grayish color, with a rufous tint on the back; lower parts white, with a pale ochreous-yellow tint on the abdomen; fore legs whitish with a rufous tinge, hind legs chestnut red behind. The length is about 14 inches, and it stands higher than most cavies. Its flesh is much esteemed by the Indians. The rufous-brown cavy (*C. flavidens*, Brandt) is somewhat larger than the Guinea pig, but its head, ears, and fur are shorter; the incisors are yellow; the color above inclines to a yellowish

brown, below to yellowish white; it inhabits Brazil. Some of its varieties are of a rich rufous-brown color. Spix's cavy (*C. Spixii*, Wagler) inhabits Brazil from Rio Janeiro to the Amazon; the general color is gray, with a tinge of brown on the back; the space between the eye and ear, a patch behind the ear, and the lower parts, white; the incisors yellow. It is larger than the Guinea pig, with shorter and softer fur. The Bolivian cavy (*C. Boliviensis*, Waterh.) inhabits the elevated regions of Bolivia; the incisors are orange yellow; general color of the fur gray, with a faint yellow tinge; throat, abdomen, and feet whitish. It rarely exceeds 10 inches in length. Some of the lofty plains of the Andes are so undermined by the burrows of these animals, that every step of a horse is attended with danger. It is very shy. The southern cavy (*C. australis*, La Geoff.) is found in Patagonia from the straits of Magellan to the 39th deg. of S. lat. The incisors are white; the fur soft and of a light grayish color; the eye edged with white, and a spot of this color behind the ear. It is about 9 inches long, and is very tame; it lives in families, digging burrows in sandy hills overgrown with bushes; its food consists of seeds and green herbage, and it has been seen to ascend trees to feed on their fruits. It may be distinguished from all others of the group by the shortness of the head, and the comparative length of the tarsi. Numerous remains of fossil cavies have been found in the diluvial strata of Brazil; M. Lund has described 4 species from the caverns of that country.

CAWDOR, or CALDER, a parish of Scotland, mostly in the county of Nairn, with a small section in Inverness, pop. 1,300, area 4 sq. m., noted for the remains of Cawdor castle, a strong feudal fortress of the 15th century, in which tradition asserts that King Duncan was murdered by Macbeth, thane of Cawdor, as narrated by Shakespeare. That event, however, took place in the 11th century. Lord Lovat lay long concealed in this castle after the Scottish rebellion.

CAWNPORE, CAWNPOOR, or CAUNPORE, a district of British India, under the lieut.-gov. of the N. W. provinces, bounded N. E. by the Ganges, which separates it from Oude, and S. W. by the Jumna, which divides it from Bundelcund. Area, 2,387 sq. m.; pop. in 1853, 1,174,556, of whom over 1,000,000 were Hindoos. The chief productions are cotton, sugar, wheat, barley, maize, pulse, tobacco, oil-seeds, and potatoes. Schools are numerous, good roads traverse the whole district, and the great East Indian railway will pass through it. It was ceded to the East India company in 1801 by the nawab of Oude.—CAWNPORE, the principal town of the district, is situated on the right bank of the Ganges, here about one mile wide, near the junction with the Ganges canal, 145 m. N. of Allahabad, about 270 m. below Delhi, and 1,000 m. from Calcutta by river. It covers an area of 690 acres, and has a pop-

ulation of 108,796, of whom 49,975 are distributed among the cantonments. It is poorly built, and has but one mosque of any pretension to elegance, but since its selection as a station for troops in 1777 it has acquired great commercial as well as military importance. It manufactures saddlery, harness, gloves, and jewelry; its shops are well supplied, its wharves are crowded with vessels, and its streets present a bustling and animated appearance. The race-course, the fashionable drive and promenade, and the best buildings, among which are an elegant theatre, handsome assembly rooms, and club rooms, are all within the cantonments, which stretch for 5 or 6 miles up the river, and are about  $\frac{1}{2}$  mile wide. Here are the barracks and many hundred bungalows, the latter built on the high banks of the Ganges, embosomed in fragrant groves and gardens, surrounded with every variety of eastern fruit, and often luxuriously furnished. The lines have accommodations for about 7,000 troops. The civilians, whose offices are in the native town, usually reside in the suburbs. —While the flames of rebellion were raging throughout Bengal in 1857, the military force at Cawnpore, commanded by Gen. Sir Hugh Wheeler, consisted of 8,800 men, of whom about 200 were Europeans. In June, symptoms of revolt induced Gen. Wheeler to throw up an intrenchment on the parade ground, enclosing 2 barrack hospitals and a few other buildings, into which he withdrew with 5 or 6 guns and about 900 Europeans, of whom  $\frac{1}{2}$  were women, children, and other non-combatants. On the 5th the expected rising took place. The native regiments marched off, taking with them horses, arms, and ammunition, and setting fire to the bungalows on their way. They placed themselves under the leadership of the rajah of Bittoor, commonly known as the Nana Sahib, seized 85 boat loads of shot and shell on the canal, and the next day appeared before the intrenchment. The siege lasted until the 27th, when the Europeans, now reduced to less than half their original number, suffering from pestilence and famine, their ammunition exhausted, and their weak ramparts half demolished, surrendered on promise of a safe passage to Allahabad. But no sooner had they embarked on the Ganges than they were fired upon from a masked battery. Many were killed in the boats; 3 or 4 made their escape, and the rest were captured and brought to land. The men were then put to death; the women and children were kept alive until July 15, when the Nana, hearing of Gen. Havelock's rapid advance toward Cawnpore, caused them to be massacred, and had their bodies thrown into a well. After defeating, in 8 obstinate battles, a strong native force sent out to oppose his march, Havelock entered the city July 16, while the Nana retreated to Bittoor. In November a monument to the memory of the victims of the Cawnpore massacre was erected on the spot by a detachment of the 82d (British) regiment.

CAWOOR, or CAWUR, a Malay town and district on the S. W. coast of the island of Sumatra. The town or village, situated at the mouth of an inconsiderable stream, in lat.  $5^{\circ} 5' N.$ , is a place of no note; it is composed of a few bamboo constructed dwellings, and has about 1,500 inhabitants. The district in the vicinity of the town is remarkable for its extensive forests of gutta percha and gutta taban trees, and for the abundance of tigers which infest these forests. Mr. Engel, a Dutch agent, for many years stationed at different points on the coast of the Bencoolen residency, in which this district is included, reported in 1853 that he traversed, in company with an armed body of Malays, different portions of this district, passing through one stretch of forest 11 miles in length, composed wholly of the 2 gum trees mentioned. He was of opinion that gutta percha could be extracted and prepared for shipment at Cawoor at a cost of 12 Dutch dollars per pound, or  $2\frac{1}{2}$  cents U. S. currency. At the same time he records many desperate encounters with tigers; the encampment of the party was frequently attacked; the fires by which it was surrounded were overleaped by the terrible beasts, who sprang upon tents or the roofs of huts; and though many were shot and speared, several also carried off a human prey. The town of Cawoor is oftentimes thrown into a state of general alarm by a descent of tigers into its streets, even in daylight. The superstitious notions of the Malays prevent them from attempting any destruction of tigers, other than what may be effected in resisting an immediate attack; and unless a civilized government devises some efficient plan for the extermination of these powerful and ferocious beasts, the many rich products of the S. W. coast of Sumatra must continue to lie waste in its forests. Pepper and coffee have been advantageously cultivated in portions of this district.

CAJAMARCA, or CAJAMARCA, one of the 65 provinces into which the 11 departments of Peru are subdivided, in the valley of the upper Marañon, or Amazon; pop. of the province about 50,000, and of Cajamarca, its capital, 7,000. The city stands on the E. declivity of the W. Andes in a rich silver mining district, 75 m. from Truxillo. It contains several handsome churches, and flourishing manufactories of woollens and outlery. The inhabitants are considered the best workmen in silver and iron in Peru. An extensive trade between the inland provinces and Lambeyque and Truxillo is carried on through this town. Woollen fabrics form the chief exports, and European manufactures, sugar, brandy, wine, iron, steel, and other articles are imported in return. In the vicinity are the baths of the Incas, and a volcanic lake, into which, according to tradition, were cast the throne and regalia of the Peruvian monarchs, the last of whom, Atahualpa, perished here by the hands of Pizarro.

CAWATAMBO, or CAJATAMBO, a town of Peru, and capital of a province of the same

name; pop. of town, 6,000; of the province, about 25,000. It is situated on the W. slope of the Andes, at the head waters of a stream flowing into the Pacific. In its vicinity are silver mines. The climate, although extremely cold, is not unfavorable to the production of grain and cattle. There are manufactories of cloth, and an active export trade in cochineal and in fine wool.

CAXIAS, or CACHIAS, formerly called Aldeas Altas, an important commercial town on the Itapicuru, in the Brazilian province of Maranhão; pop. 6,000. The chief articles of trade are cotton and rice. It suffered severely during the civil war in 1830-'40, having been for some time in the possession of the insurgents.

CAXTON, WILLIAM, the first English printer, born in Kent about 1412, died in 1491 or 1492. He received the rudiments of knowledge from his mother, and in his 15th or 16th year was apprenticed to Robert Large, a London mercer, who became lord mayor in 1439. In 1441 Caxton became a freeman of the mercers' company, who appointed him their agent in the Low Countries. In this situation he remained 23 years. In 1464 he was joined with Robert Whitehill in a commission to continue a treaty of commerce between Edward IV. of England, and Philip, duke of Burgundy, or if they thought it better, to make a new one. When the English princess, Margaret of York, married Charles, duke of Burgundy, she took Caxton into her household. While in her service, he translated from the French into English Raoul le Fèvre's *Recueil des histoires de Troie*, a work which he commenced at Bruges in 1468, and finished at Cologne in 1471. Having been long absent from his native country, he needed the assistance of his mistress to correct his English. From the prologues and epilogues of this work it appears that he was acquainted with the art of printing, and from the character of his types it is evident that he had learned the art in the Low Countries. The first 3 printed works of Caxton were the original of Raoul's "History," the oration of John Russell on Charles, duke of Burgundy, being created a knight of the garter, and the translation of Raoul, the last completed in 1471. There is no certain evidence of the exact period of Caxton's return to England; the usual supposition dates it in 1474; it is beyond doubt, however, that in 1477 he had taken up his quarters in the vicinity of Westminster Abbey, London. His printing office was in the Almonry, as appears from an old placard in Caxton's largest type, which is now preserved at Oxford. The placard runs: "If it please any man spiritual or temporel to bye any Pyes of two and thre comemoracions of Salisburi vee enprynted after the forme of this present lettre whiche ben wel and truly correct, late hym come to Westmonester in to the Almonesrye at the reed pale, and he shal have them good chepe." Caxton appears to have made use of several different sets of letters, the fac-similes of all which are to be found in

Dibdin's account of Caxton's works. He had at first two kinds of the sort called secretary; afterward he used three founts of great primer, a rude one employed in 1474, and two improved sets later; one fount of double pica, which first appears employed in 1490; and one of long primer. All his works were printed in black letter. Some entries in the parish accounts of St. Margaret, Westminster, in the year 1491 or 1492, are the only information we have of the date of his death: "Item; atte buryng of William Caxton for iiij. torches vj. viij<sup>d</sup>. Item; for the belle at same buryng, vi<sup>d</sup>." The largest collections of books from Caxton's press are those in the British museum, and in the library of Earl Spencer at Althorp. The names of about 64 productions are known. Warton says that by translating a great number of works from the French he did much in his day to enrich English literature. See Lewis's "Life of Caxton," Lond. 1787, and Oldys's account in the *Biographia Britannica*. The latest authority is "William Caxton, a Biography," by Charles Knight, Lond.

CAYAMBE, or CAYAMBURU, a summit of the Colombian Andes, lying directly under the equator, in Ecuador. It rises in the shape of a beautiful and regular cone to a height of 19,535 feet. Its top is crowned with perpetual snow, and its geographical position and great elevation render it one of the most remarkable mountains of the world.

CAYCOS. See CARCOS.

CAYENNE, the name of an island, a river, and a town in French Guiana, South America. The island is separated from the mainland by the rivers Cayenne and Oyac, and a branch by which both these rivers are united. It is 83 m. in circuit, and is simply an alluvial tract, rising over the level of the sea. Beside the town of its name, it contains some plantations and hamlets or clusters of log cabins, with a population of 2,713, mostly Africans. The river is a tolerably large stream, rising from the neighboring hills on the mainland. Among the various trees of Cayenne must be mentioned the caoutchouc, which was discovered there by Frisman in 1751.—CAYENNE, the capital of French Guiana, and a noted penal settlement, is situated on the western extremity of the island, and at the mouth of the river. Pop. about 6,000 beside the convicts. Since Louis Napoleon's *coup d'état*, many political offenders have been sent to Cayenne and mixed up with the convicts. The climate is extremely hot and deadly for Europeans; hence the painful sensation produced in France by the selection of the place as a prison for political exiles. Cayenne contains about 500 houses, mostly of wood, and is divided into the old and new towns; the former, founded about 1685, is ill built, while the new one, laid out at the end of the last century, has wide and regular streets, mostly paved and clean. The *Place d'Armes*, a large open space planted with orange trees, separates the two

parts of the town. The harbor, the entrance of which is protected by a fort commanding the old town, is shallow, but otherwise good and well adapted for merchantmen of moderate size. There are 2 quays for loading and unloading. The roadstead at the mouth of the river, though small, is the best on the coast. The average value of imports and exports during 5 years from 1850 to 1855, was collectively \$900,000 per annum. In 1856 the value of the imports was \$280,000 and of the exports \$820,000, total \$1,100,000, showing an increase of \$200,000 over the 5 preceding years. The chief exports consist of the famous Cayenne pepper, cloves, sugar, molasses and tafia, coffee, cotton, and ebony; the imports, of wines, liquors, pottery, glass, machines, jewelry, cheese, butter, oil, dried meat, &c. The following table presents a list of the penal colonies of Cayenne, and of their population in Jan. 1857:

	Free persons.	Transported.
Iles du Salut .....	914	1,176
Ilet-la-Mère .....	88	119
Silver Hill ( <i>Montagne d'Argent</i> ) .....	108	145
St. George's .....	26	150
Sta. Marie .....	145	678
St. Augustin .....	77	378
St. Philippe .....	31	95
Le Gardien .....	80	374
Quartiers .....	10	418
	768	3,857

In the spring of 1857, an accession of 560 transports was received, bringing the total of transported up to about 4,000. A steamer and a galley ply semi-monthly between Cayenne and the above-named places of imprisonment. The island La Mère, so called to distinguish it from the adjacent, and now entirely deserted, island Le Père, is regarded as the least unhealthy place on the Cayenne coast; nevertheless, the climate kills a great number of persons; among the recent victims were 2 missionaries, Father Herviant, who died in Cayenne after a residence of 6 months at La Mère, June 12, 1853, and Father Boulougue, who died on the island itself, Sept. 26, 1856. The most deadly climate is that of the island of St. Georges, where a new penal colony was settled with a few blacks in April, 1853. The majority of the convicts who have since been sent there were negroes from Martinique and Guadeloupe. Of 180 white convicts who arrived there in July, 1854, nearly half of them died before 1855; several voluntarily starved themselves to death, 2 hung themselves, and a third drowned himself. The convicts are composed of thieves of all sorts, forgers, incendiaries, and murderers. The colony most fatal to health on the mainland is Silver Hill, or *Montagne d'Argent*, at the mouth of the Oyapok, 25 leagues S. E. from Cayenne. Since the establishment of this colony, the annual average of mortality was 40 per cent.; the neighboring marshes, the deposits of the river, a rainy season of 8 or 9 months, accompanied with extreme tropical heat, all combining to produce here the most deadly miasmas.—The most recently founded colonies were St. Augustin and Ste. Marie, in the early part of 1855, and at a subsequent period St.

Philippe, all 3 on the right bank of the Oyapok river. The yellow fever has made terrible ravages in St. Augustin and in Ste. Marie: 1,150 persons were prostrated by the disease in 1856, and the missionaries sent thither died one after another. In 1857 appeared in Paris, *Mission de Cayenne et de la Guyane Française*, which is the first instalment of a more extensive work to be published, under the title, *Voyages et travaux des missionnaires de la compagnie de Jésus publiés par les pères de la même compagnie, pour servir de complément aux lettres éditifiées*.

CAYENNE PEPPER. See CAPSICUM.

CAYES, LES CAYES, or AUX CAYES, a seaport town on the S. coast of Hayti; pop. 10,000. It is one of the most prosperous towns on the island, and contains several British commercial houses. An extensive smuggling trade is carried on between it and Jamaica. In the neighborhood of the town are upward of 80 rum distilleries. Les Cayes is the centre of trade of the Heaux Vaches, which lies opposite, and of the adjacent mountains. The climate, although unhealthy, is favorable to production. Its principal articles of trade are sugar, indigo, coffee, cotton, and rum.

CAYLEY, ARTHUR, an English mathematician, born at Richmond near London, Aug. 16, 1821, was educated at Trinity college, Cambridge, where he carried off the highest honors. He is one of the editors of the "Quarterly Mathematical Journal," and has contributed many papers to scientific periodicals, home and foreign.

CAYLEY, SIR GEORGE, a skilful and public-spirited Englishman, born at Brompton, Yorkshire, 1778; died Dec. 15, 1857. His genius first displayed itself in the analysis of the mechanical properties of air under chemical and physical action. His papers on the subject gave rise to many experiments on the navigation of balloons at home and abroad. His experiments on the steam engine led to his invention of the air engine. His discoveries in optics were followed by the invention of an instrument for testing the purity of water by the abstraction of light. He was also the inventor of an ingenious arrangement for obtaining and applying electric power to machinery. He was one of the original promoters of the polytechnic institution at London. Toward the end of the last century he applied to his extensive estates in Yorkshire a new system of arterial drainage. He was also the father of the cottage allotment system. As a politician, he took a prominent part in the election of liberal members of parliament, and the return of Mr. Brougham was chiefly due to his sympathy with the reform bill. Upon the passing of that bill he was himself chosen as member for Scarborough, but on account of his advanced age he soon retired.

CAYLUS, ANNE CLAUDE PHILIPPE DE FUXIMATA, count, a French archaeologist, born in Paris, Oct. 31, 1692, died Sept. 5, 1765. He early entered the military service, and distin-



guished himself in the war of the Spanish succession. He then devoted himself to literary pursuits and to travel, and wrote a learned work on Egyptian, Etruscan, Greek, Roman, and Gallic antiquities. He left also several shorter treatises.

**CAYMAN.** See **ALLIGATOR.**

**CAYMANS**, three small islands of the British West Indies, in the Caribbean sea, forming a dependency of Jamaica. They are low islands of coral formation, and 2 of them are barren and uninhabited. Grand Cayman, the largest of them, is 24 m. long, by 2½ broad, is covered with cocoanut trees, has an anchorage on the S. W. side, and a population of 1,600. The inhabitants are bold sailors, and much employed as pilots. They also catch large numbers of the turtle on their shore, to supply the markets of Jamaica.

**CAYO ROMANO**, a long, narrow island on the N. coast of Cuba, divided into 2 parts by a channel about ¼ m. wide. It is 66 m. long, and averages 2½ m. wide; area, 172 sq. m. Timber, horses, and cattle are the principal productions. It belongs to Cuba.

**CAYOR**, or **KAYOR**, a maritime state of N. W. Africa, pop. 150,000, between the mouth of the Senegal and Cape Verd. It produces cotton, indigo, millet, and gums. The inhabitants are Joloffs and Mohammedans. Capital, Macaye.

**CAYUGA**, a county of New York, a little W. from the centre of the state, bounded N. by Lake Ontario, W. by Cayuga lake, touching Skaneateles lake on the E., and traversed by the Seneca river and other smaller streams, which furnish abundant water power. Owasco lake, a beautiful body of water 10 m. long, lies in its centre. The county has an area of about 752 sq. m., with an undulating surface and fertile soil. Salt, gypsum, and limestone are found here in abundance. Wheat, Indian corn, oats, and hay are the staples. In 1855 this county produced 868,543 bushels of corn, 221,156 of wheat, 956,636 of oats, 57,732 tons of hay, and 1,957,188 lbs. of butter. There were 30 grist mills, 2 carpet factories, 2 cotton factories, 8 woollen factories, 18 tanneries, and 10 iron foundries. It contained 100 churches and 8 newspaper establishments. Pop. 53,571. Capital, Auburn.

**CAYUGA LAKE**, in the W. central part of New York, separates Cayuga from Seneca co., and extends S. into Tompkins co. It is about 38 m. long, and from 1 to 3½ m. wide. It is navigable in all parts, but for about 6 m. from its N. extremity, is comparatively shallow. On advancing S. it becomes much deeper, and in some places is said to be unfathomable. It is rarely, if ever, frozen over, except at the shallow portion. Its surface is 146 feet above Lake Ontario, and 377 feet above the sea. The outlet of this lake flows into Seneca river.

**CAZALES**, **JEAN ANTOINE MARIE DE**, a French politician, born Feb. 1, 1758, died Nov. 24, 1805. The son of a counsellor of the Toulouse par-

liament, he served for some time in Jarnac regiment of dragoons. Being chosen in 1789 a deputy of the noblesse to the states general, he became one of the most able and eloquent opponents of the revolution, but was treated with ingratitude by the royalists, although he had labored and suffered much in their cause, and barely escaped being put to death. Having travelled abroad during the reign of terror, he returned to France in 1801. Napoleon conferred on him, although he had refused to enter his service, the cross of the legion of honor. His *Discours et opinions* and his *Discours de Louis XVI.* were published in 1831.

**CAZALLA DE LA SIERRA**, a town in the Sierra Morena, Seville, Spain; pop. in 1852, 6,652. It contains numerous religious edifices, ruined villas, and Roman and Arabic antiquities.

**CAZEMBE**, or **KAZEMBE**, the title of the sovereign of a principal negro state, in the interior of S. E. Africa. His fortified and extensive capital, Luenda, is in the land of the Kichinga, about lat. 9° 30' S.; long. 39° 16' E. The territory of the Cazembe ends 350 m. W. of the capital, and that of the Mupope begins. Toward the S. E. his rule reaches about 150 m. to the Zambezi river. The precise boundaries of his territory are not yet authenticated, but it is well known that the Cazembe is master of a large portion of the established communication across the African continent. Part of the territory to the W. consists of elevated plains; but the descent into the valley of the Luapula leads to a region of swamps and occasionally of luxuriant trees. The rivers are extremely numerous; the most important, the Luapula, the Luviri, the Zambezi, and the Ruamwea. The climate is unhealthy, the atmosphere loaded with humidity; rains abundant and regular, probably lasting from October till March. The chief products are palm wine, wild bananas, the sugar-cane, sesamum and other oil plants, and various fruits. The chief food of the people is manioc or cassava. The possession of cattle is regarded as a prerogative of the Cazembe. His subjects have only a few goats, but breed fowls and take fish as well as game. The cattle in the Cazembe territory sleep during the day and graze during the night. The chief articles of trade are slaves, ivory, salt, and copper. The people are described as tall and strong negroes, formidable in war, but docile and laborious in peace. Polygamy is allowed. No marriage ceremonies take place beyond carrying the bride home on a man's back. Funerals are celebrated with great solemnity. They worship only the shades of their ancestors, but acknowledge a creator of the world. Witchcraft keeps them in perpetual terror, and to be preserved from it, the Cazembe takes a medicine, which is mixed with the blood of a human victim. The Cazembe's power is absolute, and beside the Cazembe territory, the populous country of the Fumo Chipaco is nominally his vassal. He is invested with the title

of Musta, monopolizes the trade, and derives his revenue mainly from his copper mines and salt pans. Various expeditions have been set on foot by the Portuguese since the end of the last century into the territories of the Cazembe, and the information gained of the country is chiefly through those channels. The last Portuguese book on the subject appeared in Lisbon in 1854, and is entitled: *O Muata Cazemb e os povos Maraves, Chovas, Muisas, Muombas, Lundas, e otros da Africa Austral*.

CAZENOVIA, a post village and township on a small lake of the same name in Madison co., N. Y.; pop. in 1855, 4,495. It is the seat of the Oneida conference seminary, an institution with from 800 to 500 pupils.

CAZORLA, a Spanish town, in the province of Jaen, on the river Vega, on the slope of the Sierra Cazorla; pop. in 1852, 7,888. It is well built, in the form of an amphitheatre, on the sides of a mountain valley, and contains 2 spacious squares, one of which is adorned with a fine central fountain. It is defended by 2 old castles, one of them of Moorish origin, and has numerous churches and schools, a spacious theatre, and in its environs many delightful gardens and highly adorned public walks. Cazorla was a military station under the Romans, and figured conspicuously in the Moorish contests of the 18th century. After repeated attempts it was taken and partly burned by the French in 1811.

CAZOTTE, JACQUES, a French writer, born in 1720 at Dijon, died Sept. 25, 1792. He became first known by a prose poem, *Olivier*, somewhat in the style of Ariosto's poems. Soon a number of tales, full of wit and originality, among which *Le diable amoureux* and *Le lord impromptu*, added to his fame. He was endowed with such facility and power of imitation that in one night he wrote a sequel to Voltaire's poem, *La guerre civile de Genève*, and so perfect was the imitation that no one doubted the addition to be Voltaire's own. Notwithstanding the apparent misanthropy of his disposition, Cazotte, in his later years, became one of the most fervent adepts of the doctrines of Illuminism and Martinism. Being a faithful royalist, he was arrested during the revolution, and escaped death at first through the courage and entreaties of his daughter, but was soon rearrested and finally executed.

CAZWYNY, ZACHARIA BEN MOHAMMED BEN MAHMOUD, an Arabian naturalist, born at Cawwyn, a city of Persia, in the year of the Hegira 609 (A. D. 1212), died in 682 of the Hegira (Aug. 7, 1288). His most important work, entitled the "Wonders of Nature and the Peculiarities of Creation," contains an introduction, in which he discusses the nature and classifies the faculties of all beings according to the principles of the Aristotelian philosophy; a 1st part, in which he treats of themes like the sun, moon, stars, angels, and genii; and a 2d part, filled with observations and speculation as to earthly phenomena—meteors, winds, climates, rivers, and seas; the formation of mountains; the

cause of earthquakes; the description of minerals, plants, and animals; and a particular account of man in an anatomical, intellectual, and moral point of view.

CEAN-BERMEDEZ, JUAN AGUSTIN, a Spanish archaeologist, born Sept. 17, 1749, at Gijon, in Asturia, died in Madrid, Dec. 8, 1829. He devoted himself early to the study of the fine arts, into which he was initiated by Raphael Menga. After holding a public office at Madrid, he retired to Seville, where he founded an academy of fine arts, and occupied himself with the study of their history. He was elected a member of the royal academies of history and fine arts at Madrid, and published several valuable works connected with his favorite pursuits. His most important book, entitled *Sumario de las antigüedades romanas que hayen España*, appeared posthumously in 1832.

CEARA, one of the N. E. provinces of Brazil, bounded N. and N. E. by the Atlantic ocean, E. and S. E. by the province of Rio Grande do Norte, S. by Parahiba, and W. by Piauí; area in 1853, 42,600 sq. m.; pop. 210,000—the latter estimated in 1856 at 385,800. The province sends 4 senators and 8 deputies to the Brazilian parliament. The capital is Portaleza. The climate is hot and dry; the soil sandy and barren along the coast, but more fertile toward the mountains. In the lower districts grain and manioc are cultivated, and along the rivers cotton. The most fertile and populous districts are about the upper branches of the Rio Jaguaribe, the most important river of the province. The province is celebrated for its cattle, and for its fine forests. The chief exports are cotton, hides, and dyewoods. The other products are sugar, tobacco, pineapples, amethyst, alum, and a small quantity of gold. Agriculture and the rearing of cattle form the principal occupations of the inhabitants.

CEBES, a Greek philosopher of the 5th century B. C. He was one of the pupils, friends, and disciples of Socrates, and is introduced by Plato as one of the personages conversing in the dialogue, so famous in all ages under the name of "Phædo." He was a native of Thebes, in Boeotia, and is, in addition to the splendid examples of Pindar, Epaminondas, Pelopidas, and Plutarch, an evidence against the truth of the proverb of *Bootum crasso jurares aëre natum*, which has assigned to the natives of that state the unenvied birthright of natural stupidity. This Theban Cebes, however, composed 8 dialogues called *Hedone* or the seventh, *Phrynicus*, and *Pinax*, the tablet or picture. Of these, the last alone has come down to posterity. It is a moral sketch or picture of human life, equally pure in its Greek style and its moral teachings. The authorship of this work has been questioned by modern critics, some of whom ascribe it to a later Cebes, of Cyzicus, while the foremost Greek scholars all maintain that it was the production of Cebes, the learned Theban. No work of antiquity has had a wider circulation than the

"Picture" of Cebes. It has been translated into almost all the modern languages, even into Arabic. The best editions are those of Schweighäuser (Strasbourg, 1806), and of Co-raes, in his edition of Epictetus (Paris, 1826).

CEBU, or Zebu, the name of a province, island, and town of the Philippine archipelago. The island lies between lat.  $10^{\circ} 30'$  and  $11^{\circ}$  N., 87 m. long and 16 m. broad; area 1,211 sq. m.; pop. 272,000, and 220 to the sq. m. This island was the first land of the Philippines with which Magellan held intercourse; he landed upon it April 7, 1521; and it is noted in the archipelago as being the first upon which Christianity was preached. However, the rapid conversion which then took place, the baptism of the king and queen of Cebu and all their court, was mainly effected by the persuasions and threats of the zealous circumnavigator, and after his violent death a speedy and general apostasy ensued. It was not till the arrival of Don Miguel de Legaspi, the first Spanish governor of the Philippines, 44 years after the death of Magellan, that the thorough conversion of the inhabitants began. The general adoption of Christianity by the people of this considerable island, and their hearty abandonment of a horribly degrading idolatrous worship, is attributed mainly to the zeal and energy of Andres de Urdaneta, a humble priest of Seville, who ranks with Xavier as an indefatigable, fearless, and pure-hearted missionary of the cross, and who accomplished far more than Legaspi and his army in effecting the conquest of the Philippines. The progress of the island in population and agricultural development has been rapid; its population in 1785 was only 28,320, in 1799 it had more than trebled the previous census, and now there are in Cebu 12 times the number of inhabitants that there were a century and a half ago. The surface of the island is very uneven, and the soil is thin and stony, and except in a few fertile valleys generally unfavorable to cultivation; but the docile and industrious Cebuan produce an ample subsistence for themselves of rice and other vegetable productions, and export some tobacco, hemp, and cocoa. The climate is very healthy, and instances of natives exceeding the age of 100 years are quite common. An enumeration of 82 Cebuan centenarians is given in Spanish statistical reports, one of whom had attained to the advanced age of 187 years. A low range of mountains forms a water-shed the whole length of the island; the streams that descend from the slopes on either side are all too inconsiderable in depth and too full of shoals to be available for any purposes of navigation; but gold has recently been found in large quantities in all these streams, and the mountains are said to be rich in fossil coal. Exports of both these minerals are beginning to increase the importance of the commercial port of the same name, situated on the W. coast, in lat.  $10^{\circ} 18'$  N., and opposite to the small island of Mactan, which is noted as the place where Magellan was

slain. The population of the town is about 7,000. It is the seat of a bishopric, and of the civil and military administration of the province, which includes, beside the main island, the neighboring islands, Bohol, Olango, Mactan, Mino, Panglao, Fuego, Polo, Davis, and 27 inconsiderable islets. The population of the province in 1850 was 389,078, of which nearly one-third are on the small island of Bohol. The bishop of Cebu has jurisdiction over 13 of the 35 provinces of the Spanish Philippines. The fervent Christian character implanted by Urdaneta among the first converts of Cebu has been preserved by their descendants, and gives to their ecclesiastical establishment a marked distinction in the archipelago. The people are chiefly of the Bisaya nation, and there are no negroes or wild races in the province. A mestizo race, the descendants of Europeans and native women, are the chief merchants of the town; and, although they are the most opulent inhabitants, yet are regarded unfavorably by natives of pure race, as well as Europeans, and are compelled to occupy a quarter of the town by themselves. The prejudice against mixed races is probably stronger in the Philippines than in any other portion of the eastern hemisphere.

OEIL, a N. E. county of Maryland, area about 800 sq. m., bordering on Pennsylvania and Delaware, and situated at the head of Chesapeake bay, which forms its S. W. boundary. Pop. in 1850, 18,939, of whom 844 were slaves. Its W. border is washed by the Susquehanna, and Sassafras river bounds it on the S. The surface is slightly uneven, and the soil fertile and carefully improved. The productions in 1850 were 410,060 bushels of corn, 168,112 of wheat, 208,880 of oats, and 9,288 tons of hay. Butter, cattle, and swine are the other principal articles of export. There are a number of factories, mills, furnaces, &c. At Port Deposit are immense granite quarries, and the country also contains gneiss, slate, iron, chrome, and sulphate of magnesia. It is intersected by several railroads leading from Philadelphia to Baltimore. Organized in 1674; capital, Elkton.

OEIL, ROBERT, earl of Salisbury, an English statesman, son of Lord Burleigh, by Mildred, his 2d wife, born about the middle of the 16th century, died at Marlborough, May 24, 1612. He was of weakly constitution and deformed in person, but gifted with great acuteness and energy. On his election to parliament as member for Westminster, his abilities attracted the notice of Queen Elizabeth, who attached him to the French mission, and subsequently appointed him assistant secretary of state. The earl of Essex was at this time the queen's favorite. His influence and that of the Cecil (father and son) continually came into collision; consequently a rivalry sprang up between them, which continued, openly or secretly, until Essex perished on the block. In 1590 Secretary Walsingham died. Essex demanded the office for a nominee of his own,

while Burleigh requested it for his son Robert. The queen, unwilling to offend her favorite, left the appointment open, and it was not till 1596 that Cecil was installed as principal secretary of state. While Essex was absent on the 2d Spanish expedition, Cecil contrived to procure for himself the chancellorship of the duchy of Lancaster, which the earl had requested for a friend. That quarrel was, however, made up, and Cecil, being sent to France, much against his will, to negotiate a peace between Henry IV. and the Spaniards, deemed it an effectual way of tying his rival's hands to confide the secretaryship to him during his own absence. Essex discharged the trust honorably. Cecil's first act on his return was to thwart Essex in his attempt to obtain the deputyship of Ireland for his friend Sir George Carew, an incident which brought about the celebrated quarrel in which Elizabeth boxed her favorite's ears and invited him to "go to the devil." Essex's fall was rapid, and Secretary Cecil was soon relieved from his rivalry. He is accused of having in like manner sacrificed Sir Walter Raleigh, while professing to be his friend. Cautiously, but surely, he supplanted the influence of all others around the throne, and centred the whole power of the court in himself. On the death of his father he was made premier. Elizabeth placed every confidence in his administration. He was at all times ready, in appearance, to sacrifice his own views to the "divine judgment of his sovereign." Yet in reality he endeavored, with success, both in Elizabeth's reign and her successor's, to restrain the power of the crown. Having secretly favored the interests of James I., he was rewarded by that sovereign, on his accession, by being continued in office, and by being created, in 1603, baron of Essenden; in 1604, Viscount Cranbourn; and in 1605, earl of Salisbury. In 1608 he succeeded Dorset as lord high treasurer, notwithstanding the exertions of his new rival, but former friend, Henry Howard, earl of Northampton, to obtain the office. When the gunpowder plot was found to be really no fiction, he entered actively into the detection of the conspirators. A work of his is extant, entitled "A Treatise against Papists." James had the highest opinion of his sagacity in discovering plots, and called him on that account by the familiar appellation of "my little beagle." He could not be brought, however, to assent to James's project for the incorporation of the 2 kingdoms. This backwardness caused the suspicious monarch to fear that he was at heart a Puritan. In all other matters the king followed his lead, asking nothing in return but money to carry on his extravagant expenditure. Thus, the whole cares of the government were thrown on his shoulders. James had no order in his expenditure. The ordinary revenues being insufficient to meet his wants, imposts were laid on articles of commerce by proclamation. The country denied the constitutionality of this proceeding, but the

court of exchequer decided in favor of the king. Cecil interposed between the king and the people. He asked, in conference of the 2 houses of parliament, that an immediate subsidy should be voted to liquidate the royal debt, and that an addition of £200,000 be made to the annual income, to prevent the recurrence of a similar exercise of the king's prerogative. Parliament retorted on the king by a demand for numerous reforms. After protracted conferences, both houses adjourned without granting the required supplies. The failure of his proposition was a source of bitter mortification to the treasurer. His health sunk under a complication of disorders. Having tried the mineral waters of Bath without benefit, he set out for London, but died on the way. Cecil was a man of consummate skill, sagacious and honest in administration, far-seeing, fertile in expedients, and unscrupulous in using them. His administration imparted to the last days of Elizabeth the brightness that Burleigh's talents shed on the earlier part of her reign. That the opening of James's administration was less brilliant than the preceding was owing less to the minister than to the pusillanimity of his master. Lord Hailes published "Secret Correspondence of Sir Robert Cecil with James VI. of Scotland," 12mo. 1766.

CECIL, WILLIAM. See BURLEIGH, LORD.

CECILIA, SAINT, a saint of the Roman Catholic church, whose anniversary is celebrated Nov. 22. She was a Roman lady of high descent, born about the middle of the 2d or the commencement of the 3d century. Compelled by her parents to marry Valerian, a noble youth of Rome, although she had at an early age made a vow to consecrate her life to religion, St. Cecilia was eventually doomed to suffer martyrdom; and her husband, her brother-in-law, and another Roman, whom she is believed to have converted, were supposed to have met with the same fate. St. Cecilia is the chosen patroness of musicians, and from her skill in singing, is especially regarded as the patroness of sacred music. Several churches were built in her honor at Rome. Beautiful pictures of the saint were executed by Raphael and other celebrated painters, and Father De Brillon of the Oratoire published in 1668 a work entitled, *La sépulture admirable de Sainte Cécile dans son église de Rome*.

CECROPS, first king of Attica, about 1550 B. C., is represented in the ancient legends as the civilizer of that country. He founded Cecropia, which at a later period formed the Acropolis of Athens, and several other places; divided Attica into 12 communities; taught its inhabitants morality and manners, marriage, and the worship of the gods; abolished bloody sacrifices, and introduced agriculture, navigation, ship-building, and the culture of the olive. According to some, he was of Pelagian origin, while others say he was the leader of an Egyptian colony from Sais. He reigned 50 years. His merits were commemorated by a monument in

the temple of Minerva, in favor of which goddess he is said to have decided a dispute with Neptune concerning the possession of Attica. He was also worshipped in the constellation of Aquarius. In sculpture he was represented as half man half woman, or half man half serpent; hence his name *Διωνυς* (Lat. *Geminus*).

CEDAR, the name of several species of evergreen trees of the order *conifera*, the principal of which are the cedar of Lebanon (*pinus cedrus*, Linn.), the cedar of Goa (*cupressus Lusitanica*, Linn.), the Indian cedar (*pinus deodara*, Lambert), the white cedar (*cupressus thyoides*, Linn.), and the red cedar (*juniperus Virginiana*, Linn.).—The cedar of Lebanon, or cedar larch, is a native of the coldest parts of Mt. Lebanon and the range of the Taurus, and from its superior magnificence became with Scripture writers a favorite emblem for greatness, splendor, and majesty. The durability and fragrance of its wood caused it to be sought for costly buildings, as the palace of David and the temple of Solomon. Though it formerly covered Lebanon with dense forests, so that fourscore thousand hewers were employed by Solomon in obtaining timber from them, yet the destruction of the trees for architectural purposes was more rapid than their growth, and in the 6th century Justinian found it difficult to procure cedar timber enough for the roof of a single church. The cedars of Lebanon have now dwindled to a few groves, the principal of which is a thick forest containing about 80 very large trees, 50 of middling size, and 300 smaller and young ones. It occupies a natural amphitheatre at the foot of the wildest of the gorges of Lebanon, and is regarded by the people as sacred. The largest of the trees have a diameter of 9 feet. This cedar is now extensively cultivated as an ornamental tree in Europe and America, one or two specimens of it giving variety and force to a dull front of round-headed trees.—The cedar of Goa is found wild in parts of India and in Japan, and has been naturalized in Portugal around Cintra. It is the handsomest tree of the genus *cupressus*, and distinguished by its abundance of long dichotomous pendent branchlets.—The Indian cedar is a large tree found wild on the mountains of Nepal and Thibet, at a height of about 10,000 feet above the sea. Its timber possesses the qualities attributed by the ancients to the cedar of Lebanon, being compact, resinous, and fragrant. It is much used for building in India, has been introduced into England as an ornamental tree, and has been successfully grafted on the cedar of Lebanon.—The white cedar is an abundant tree in swamps in the United States southward from Massachusetts and Ohio, reaching a height of from 80 to 70 feet. It has a fibrous, shreddy bark; leaves of a dull, glaucous-green color, very small and scale-like, and an exceedingly durable wood of a reddish color. Every part of the tree is strong-scented. It is used as a material for fences, and is in the highest esteem for shingles and coopers' staves.—The red cedar is a native of

North America, the West Indies, and also Japan, and attains a height of from 15 to 80 feet. Its wood is odorous, of a bright red color, very compact and durable, and offensive to most insects. It is much used for the purposes of the cabinetmaker and for the outsides of black-lead pencils.—Several varieties of the cedar are described as attaining an immense size in California.

CEDAR. I. A W. co. of Mo., intersected by Sac river; area 435 sq. m.; pop. in 1856, 5,384, of whom 196 were slaves. The surface is uneven, the soil productive. In 1850 it yielded 147,225 bushels of corn, 9,067 of wheat, 45,769 of oats, and 202 tons of hay. The public schools numbered 320 pupils. Capital, Fremont. II. An E. co. of Iowa, intersected by Cedar and Wapsipinicon rivers; area 576 sq. m.; pop. in 1856, 9,481. The surface is diversified by fertile undulating prairies and woodlands. In 1856 the productions were 770,971 bushels of corn, 255,743 of wheat, 117,003 of oats, and 142,797 lbs. of butter. Cedar river, from which the county is named, flows through a narrow pass in the W. part, on either side of which its rocky banks rise perpendicularly to a great height. Capital, Tipton.

CEDAR MOUNTAINS, a range of Cape Colony, south Africa, extending from lat. 31° 57' to 32° 24' S., and nearly along the meridian of 19° E. They are of primitive formation, with peaks from 1,600 to 5,000 feet above the level of the sea, covered with gigantic cedar trees. At heights of from 800 to 1,000 feet above the valley are found many Bojesman caves with well-executed drawings in red ochre. An ash-colored quartzose sandstone predominates in the higher parts, and marine fossils in the lower. The valleys between the hills are very fertile.

CEADAR SPRINGS, a post village of Spartanburg dist., S. C., is an old watering-place and the seat of a state deaf and dumb asylum, a prosperous and well-conducted institution, originally established by the Rev. N. P. Walker.

CEFALU (anc. *Cophaladis*), a fortified seaport town, at the foot of a rock, on the N. coast of the island of Sicily, capital of a district of the same name (which is divided into 12 cantons), in the province of Palermo, and 89 m. S. E. of that city; pop. 8,940. The town is the seat of a bishopric, and contains a fine cathedral and several other churches. The remains of a Phœnician edifice, a castle built by the Saracens, and several marble quarries, are in the vicinity. Sea fishing is prosecuted with great activity. The port, however, is capable of receiving only a small number of vessels.

OEHEGIN, or OHEGIN, a Spanish town, province of Murcia, 3 m. E. from Caravaca; pop. in 1852, 6,854. It contains numerous handsome houses, built of marble from the neighboring quarries, and has manufactories of paper, cloth, soap, pottery, oil and brandy distilleries, and commerces in wine, fruits, grain, wool, hemp, flax, and cotton. There are, beside the parish

church, 8 chapels, several schools, a theatre, and various handsome public buildings.

CELAKOWSKY, FRANTIŠEK LADISLAV, a Bohemian poet and philologist, born at Strakonitz, March 7, 1799, died in Prague, Aug. 5, 1852. Having learned German in his childhood, he entered the gymnasium of Budweis in 1812, and studied subsequently at Pisek, Linz, and Prague. He was destined for the pulpit, but from patriotic impulses declined to adopt that profession, and engaged in 1821 as instructor in a nobleman's family, where he could at the same time pursue his literary occupations. He soon published a series of original and translated works, remarkable at that period of transition from the old classical to the modern national style in the Oechic literature. In 1828 he became associate editor of the "Quarterly Review for the Catholic Clergy," published by the consistorium at Prague, and in 1834 editor of the "Bohemian Gazette," and of the "Bea," a literary journal. He also commenced a series of lectures on the Oechic language and literature, at the university of Prague. He lost both his situation as editor and that at the university, in consequence of a remark against the emperor Nicholas. The favor of public opinion, however, and a comfortable situation as librarian of the prince, afterward of the princess Kinaky, were the rewards of his liberalism. The Bohemian society for the propagation of science elected him a member in 1840. In 1842 he accepted a professorship of the Slavic language and literature, recently established by the king of Prussia for the benefit of his Polish subjects, at the university of Breslau. After the events of 1848, the Austrian government, which now sought for support from the Oechic nationality, offered him a professorship at the university of Prague. He did not live long to officiate in this capacity, his death having been accelerated by domestic misfortunes and mental suffering. Of his numerous works, the following are most remarkable: "Poems" (Prague, 1822, new edition, 1880); "Slavic National Songs" (8 vols., Prague, 1822-27); "Lithuanian National Songs" (Prague, 1827); a metrical translation of Walter Scott's "Lady of the Lake" (Prague, 1828); a translation of Augustine's *De Civitate Dei*, 5 vols. (Prague, 1829-32); "Echo of Russian National Songs" (Prague, 1829); "Echo of Oechic National Songs" (Prague, 1840). One of his latest works was the "Popular Philosophy of the Slavic Nations in their Proverbs" (Prague, 1851). After 1835 Celakowsky was engaged in a comparative study of all the Slavic dialects, the fruit of which is given in part in his additions to Jungmann's Oechic dictionary. As a poet he is distinguished by the grace and *naïveté* of his popular songs.

OELBRIDGE, a town of Ireland, in the county of Kildare, 15 m. W. from Dublin, on the right bank of the Liffey, which is here crossed by a handsome stone bridge; pop. in 1851, 1,674. Manufactories of straw hats and woollen and linen wares are carried on here.

In the vicinity are Reeves castle, the seat of the earl of Leitrim, and Lyons castle, the seat of Lord Cloncurry. Swift's Vanessa resided for some time at Calbridge abbey, the residence of Mr. H. Grattan.

CELEBES, an island of the Malay archipelago, of singular conformation, representing in appearance 5 extensive peninsulas grouped around a small central body. The northern, or peninsula of Menado, intersected by the equator, about one degree from its junction at the bay of Palos with the central mainland, extends from this point nearly due E. to its extremity at Cape Polisan, 480 m.; the N. E., or peninsula of Balante, is 182 m. long; the S. E., or peninsula of Teboonkoo, is 170 m. long; the S. W., or Boni peninsula, 160 m.; and the W., or Mandar peninsula, is a short projection about  $\frac{1}{2}$  a degree in length. Celebes extends 800 m. from its N. E. extremity to its most southern point; it has an extent of sea-coast equal to all the Atlantic United States, or about 2,600 m.; and yet its area is but 68,500 sq. m., or about the extent of the state of Missouri. The 3 extensive gulfs, Gorontalo, Tomaiiki, and Boni, which serve to form these peninsulas, are very shallow, especially Gorontalo or Tomini, which, though making an indentation of 240 m., yet has not sufficient depth of water to permit the entrance of the largest class of European vessels; and even those of the lightest burden have not been able to approach within 10 or 15 m. of its almost unknown coasts. But at the period of the first European intercourse with the island, 8 centuries ago, Portuguese frigates freely navigated this broad bay. There has been a sensible diminution in depth of the waters surrounding this island, and it is manifest that a gradual upheaval of this portion of the archipelago is in progress; and in the course of time, this and the neighboring island of Gilolo, which is also a group of peninsulas, will have their great bays filled up by *terra firma*, and will exhibit an unbroken outline like Borneo, which evidently at one time presented the same singular configuration as these two islands. Elevated mountain chains extend throughout the whole length of each peninsula of Celebes; but the peninsula of Menado alone is of volcanic origin, and it has 8 active volcanic peaks, about 5,000 ft. high, near the E. extremity. The highest peak of the island, Lompo Batang, 8,200 ft. high, is near the extremity of the S. peninsula. The surface of the central mainland and of portions of the S. W. and S. peninsulas, is mostly elevated table land, covered with excellent pasture grasses, upon which are found grazing great numbers of wild horses and buffaloes, as on the prairies of America. These natural pastures of Celebes are a peculiarity, not observed on any other island of the archipelago; but it has recently been found to be the case upon some of the Papuan islands, lying between the Malaysian and Polynesian formations. These extensive plains, which serve for hunting

grounds, and the great extent of sea-coast, have contributed, no doubt, to distinguish the inhabitants of Celebes for an ardent love of the chase, and a love of maritime adventure, above all other people in the archipelago, or in the eastern hemisphere. To capture the wild horse of their grassy plateaus—a well-shaped, spirited animal—to subdue him, and to train him for the pursuit of the wild deer and babi-rusa, is a passion among the free-spirited races of this island, especially those of the S. W. or Boni peninsula, which is only equalled by their love of adventure by sea, whether commercial, piratical, exploring, or colonizing. In these respects, one race in particular, the Bugis of Boni and Tuwaju, are distinguished above all other people in the eastern seas. (See Buens.) The chief seat of this people is on the borders of Lake Labaya, or, as called by the natives, Taparang Danau. It is 25 m. long and 18 broad, and has an average depth of 32 feet in the dry season, and 60 feet in the wet season. Upward of 100 neatly-built villages, tastefully embowered in the stately fruit trees of the tropics, border and adorn its shores, while its surface is covered with such numbers of sailing craft of every description, that, as stated by a Bugis chieftain at Singapore, it would not be difficult on many days to pass a signal by voice from vessel to vessel the whole length of the lake. However much we may regard this as a native exaggeration, we know that this remarkable lake is a great inland harbor of supply and repairs for the great fleet of Bugis prahus, or padewakans, which cruise throughout the archipelago. The only outlet of the lake is the Chinrana river, which disembogues in the bay of Boni, in lat.  $4^{\circ} 15' S.$  During the N. W. monsoon, the largest native craft can descend this stream. It is about 53 m. long, and has an average depth of  $2\frac{1}{2}$  fathoms. The Bugis occupy that portion of the S. W. peninsula lying between lat.  $8^{\circ} 30'$  and  $5^{\circ} S.$  To the southward of them, the Mangassar tribes, and the small states of Tooratea, Bonthain, and Boolekumba, which occupy the extremity of the peninsula, have been subjugated by the Dutch. N. of the Bugis is a nation called the Mandara, who have like them invented a written alphabet. The S. E. or Teboonkoo peninsula is very little known; its interior has not been explored by Europeans, and is possessed by several wild tribes, who are described as Alfuras, the peculiar aboriginal race found in all the islands of the Molucca seas. Sir Stamford Raffles is of opinion that the principal races of Celebes are of Tartar origin. The centre of the island is possessed by a barbarous people called Turajas, who resemble the Dyaks of Borneo; they have, like them, a passion for possessing human heads, and they spend much time in hunting, not like other savages for subsistence alone, but for the sake of the sport, and they follow the chase with as keen a relish as the English sportsman. They are a good-looking type of the brown race; they are pagans, not having yet adopted

Mohammedanism, like the rest of the inhabitants; and their country presents an interesting field for the labors of the Christian missionary. The W., or peninsula of Balante, is even less known than that of Teboonkoo, and is peopled by the same race. The Menado peninsula is the most fertile of the whole island. The territory of Minahasa, near its E. extremity, produces the finest quality of coffee in the archipelago, superior to the best of Java. The annual product has been for a few years past about 1,250,000 lbs. This territory also produces about 250,000 lbs. of cocoa, and it is said to be the only territory in the archipelago in which this delicate plant has been successfully cultivated. Upon the table lands of Minahasa, which are about 2,500 feet above the level of the sea, the American potato and all the esculent vegetables of temperate climates are cultivated with much success. This territory exports also about 45,000 cwt. of rice yearly. Rich alluvial deposits of gold have been found in many places throughout the entire length of this peninsula, and some of those now worked by the sultan of Menado are said to be the richest in the archipelago. Tin and copper are also found. The iron ore of the island is of a very superior quality; and there is a peculiar kind, called pamor, which is almost white like tin, and is used by the famous Dyak cutlers in damascening their celebrated sword and knife blades. There are no large ferocious animals upon this island; none of the feline race exist upon it; neither does the elephant or rhinoceros. The principal wild animals are the horse, buffalo, and ox, which are readily domesticated by the natives; and in the forests and grassy plains are great numbers of a species of zebu, several varieties of deer, the hog deer, or babi-rusa, the common wild hog, and several varieties of the marsupial or pouched class of animals, like the kangaroo and opossum. A very dense forest covers the mountainous portions of the island; and the woods of several trees are esteemed very valuable for economic and artistic purposes. The sago palm is found very plentifully, and furnishes a light and pleasant bread, chiefly used by the least civilized inhabitants of the island, but the staple article of food of the people of Minahasa. About  $\frac{1}{3}$  of the island is elevated prairie land, and the rest is mostly dense forest, with the exception of a few cultivated districts in the N. and S. W. peninsulas, which do not comprise more than about the  $\frac{1}{11}$  part of the surface of the island. In regard to population, the Dutch estimate 520,000 under their jurisdiction in the N. and S. W. peninsulas, who occupy about  $\frac{1}{3}$  of the island; and it is probable that the population is not less than 1,500,000, which in proportion to area is not more than  $\frac{1}{11}$  the density of population on the island of Java.—Celebes was first discovered in 1525 by a small band of Portuguese adventurers, who sailed from Ternate in a small native craft in quest of what was

termed a group of islands said to abound in gold, and spoken of as *si labia*, "still more" islands, where the European intruders might find gold and spices the same as they had found in the Molucca group of islands. The Portuguese, who touched at the points of 2 peninsulas, thought they were different islands; and in their report named them as *ilhas Celibes*, which designation being adopted by De Barros, De Oauto, Castañeda, and other Portuguese chroniclers, has become fixed in geography and history as the name of the island. But such a name is not known to its inhabitants, who generally call it "Negri Bugia," or the Bugis Land. The most advanced of the nations of Celebes were converted to Mohammedanism some years after the arrival of the Portuguese in the archipelago. They disregarded the teachings of the Portuguese missionaries, which were so readily accepted and faithfully observed by the people of the neighboring Molucca islands. The first intercourse of the Dutch with the island was in 1607. In 1660 they expelled the Portuguese from their possessions in the Macassar country. The Dutch maintained their position in Celebes for 2 centuries, till their expulsion by the British in 1810. But their possessions in Celebes, along with those in Java, were restored to them in 1816. The Dutch declared Macassar a free port in 1846, as a rival to Singapore; and Kema, in the Menado peninsula, in lat.  $1^{\circ} 22' N.$ , and long.  $125^{\circ} 19' E.$ , was declared a free port in 1849.

CELERES, in Roman antiquity, a regiment of royal body-guards instituted by Romulus, composed of 300 young men of the most illustrious families. They were elected by the suffrages of the 30 curias, each of which furnished 10. The name has been derived by some from the name of their first chief, but more probably was given to them in allusion to the rapidity with which they executed their orders. Their commander was called the tribune of the celeres, and was, after the king, the highest officer in the state. This office was held by Brutus when he expelled the Tarquins from Rome. The celeres are thought by Niebuhr to have been the patricians in general, so called because they could keep horses or fought on horseback, and thus to correspond with the later *equites* or knights.

CELERY (*apium graveolens*, Linn.), an umbelliferous plant cultivated for salad. In its wild state, in which it is found in ditches throughout Europe, it is rank, coarse, and even poisonous, but by cultivation in gardens it becomes sweet, crisp, juicy, and of an agreeable flavor. Its green leaves, stems, and seeds are used in soups, and the blanched stalks either in that way, or more usually as a salad. One variety, called the celeriac, is raised only for the root or base of the leaves, which becomes a white, solid bulb. Celery requires a deep, rich, well drained soil. The seed is sown in a bed, from which the plants are transferred to another when they are 2 or 3 inches high. At 8 or 12 inches' height they are transferred for

blanching to trenches which are nearly 1 foot in depth. The plants are repeatedly earthed up till they have risen 2 feet or more above the natural surface. Celeries is not blanched, but grows openly, exposed to the light.

CELESTINE, the name of 5 popes. I. ST. CELESTINE, whose anniversary is celebrated April 6, a Roman by birth, and related to the emperor Valentinian, was created cardinal deacon by Innocent I., and succeeded Pope Boniface, Nov. 8, 422. The heresy of Nestorius induced him to convoke the council of Ephesus in 431, at which 200 bishops were assembled, and which was presided over by his 8 legates. Celestine, the chief of the Pelagians, having retired into Britain, he sent missionaries there who, in the space of 2 years, brought back that country to the faith. Shortly after this he sent Palladius to Scotland, and St. Patrick to Ireland. Some epistles of this pope have been preserved, but those written to the bishops who had taken part in the election of Nestorius and to Eugenius have been lost. He died April 6, 432, and was buried in the cemetery of St. Priscilla, on the Via Salavia. II. GUIDO DI CASTELLO, was a disciple of Abelard, and was created cardinal priest by Honorius II., and made governor of Benevento by Innocent II., at whose death he was elected pope, Sept. 25, 1143. As soon as he had ascended the pontifical throne he received ambassadors from Louis VII., who came to supplicate peace, and also absolution from the ecclesiastical censures under which the kingdom had been laid by his predecessors. The pope granted their request in the presence of the nobles of Rome. Having occupied the pontifical see 5 months, he died March 9, 1144, and was buried in the church of St. John Lateran. Only 8 epistles of his are extant. III. GILBERT ORSINI, a Roman by birth, and descended from the illustrious family of that name. He was created cardinal by Honorius II., elected pope when past 80 years of age, March 30, 1191, and died Jan. 8, 1198. The day after his consecration he crowned the emperor Henry VI., and his empress Constance. After the coronation, the emperor restored to the pope the city of Tusculum, which the pope gave to the Roman citizens, who to avenge some former disputes destroyed it. He afterward excommunicated the emperor, because he kept in prison Richard Cœur de Lion. Among other noteworthy events of Celestine's pontificate was his confirmation of the Teutonic military order in 1192. IV. The son of John Castiglione, of Milan, and Cassandra Crivelli, the sister of Urban III. He was appointed canon and chancellor of his native city, and afterward became a monk in the monastery of Altacombe. Gregory IX., in 1227, created him cardinal, and sent him as legate into Tuscany, and after this to Lombardy and to Monte Casino, where he found the emperor Frederic II. preparing to send succors to the Holy Land. He was elected pope Sept. 20, 1241. Advanced in years, and with health much impaired by in-



firmities, he occupied the see only a short time, and died Oct. 8, 1241, without having received consecration, and without having published any bull. V. **PETRO ALEXANDER**, born about 1215, at Isernia, in Naples, died May 19, 1296. Previous to his election he was called Pietro of Murrone, from a mountain near Sulmona where he led a solitary life. When 17 years old he became a Benedictine monk in the monastery of Faifoli, in the diocese of Benevento. After performing extraordinary penances for many years, he went to Rome, where he was ordained priest in 1239. Having spent 5 years at Murrone, he afterward removed to Mount Majella, near Sulmona, where he lived with 2 other priests in a large cavern. He fasted every day except Sunday, and observed 4 Lents in the year, living on bread and water, working and praying during the entire day and most of the night. In 1244, he founded the religious order called Celestines, which prospered so much during his lifetime that it consisted of 600 monks and 86 monasteries. This order was approved by Urban IV., who incorporated it with the Benedictine order. Gregory X. confirmed it in 1274 in the 2d general council of Lyons. Pietro was elected pope July 7, 1294, after the death of Nicholas IV. The account of his election being forwarded to him in his retirement, he refused to accept the dignity, though the cardinals and Charles II. king of Naples, and Andrew III. king of Hungary, urged him strongly to do so. He attempted to fly from his retreat, but was prevented by a vast concourse of people. At length he consented to accept the dignity, and proceeded to Perugia accompanied by the kings of Naples and Hungary, and was crowned Aug. 29. He made his public entrance into the city amid the applause of more than 200,000 people. In the city of Aquila he appointed 12 cardinals, 5 of whom were Italians and 7 French, and then went to Naples. He made 2 constitutions which provided for the cardinals entering into conclave on the election of a pope, thus renewing a constitution already made by Gregory X. in the council of Lyons; and also another respecting the pope resigning his office. After occupying the pontifical see during 5 months, he renounced the tiara, Dec. 18, 1294, on finding that he was but little acquainted with temporal matters, and still retained his unconquerable love for solitude. The see remained vacant 10 days, when Boniface VIII. was elected his successor. Celestine then retired again to his solitude at Majella, to devote himself altogether to prayer and to mortification. His successor, Boniface VIII., fearing difficulties might be caused by artful persons, who would turn his simplicity to their own account, wished to keep him under his control, and at first confined him in a house in Anagni near his own residence, and afterward transferred him to Fumone, near Ferentino in Campagna, where he languished for 10 months in a climate so sickly that the religious who waited on him were obliged to be changed

every 2 months. He finally died there May 19, 1296, and was canonized at Avignon by Pope Clement V., May 5, 1313. He wrote the following treatises, which were published at Naples in 1640: *Relatio Vita sua*; *De Virtutibus*; *De Vitiis*; *De Hominis Vanitate*; *De Exemplis*; *De Sententiis Patrum*. Several lives of this pope have been written; among them, one by Lelio Marini, which was published at Milan in 1680.

**CELIBACY**, the state of a person who renounces matrimony. Among the classical nations celibacy was considered as an offence toward society, and celibates were subjected to various penalties. In Sparta unmarried men were regarded as deserters from the community, branded with infamy, and by the laws of Lycourgus might be seized and severely punished by the women in the temple of Hercules. Plato, in his imaginary republic, declared all those who had remained unmarried till they were 35 years old to be incapable of holding any public office. By the laws of Rome celibates were forbidden to bear witness in court, or to leave a will, and special penalties were reserved for them in the future life. Such opinions and ordinances prove that in those times celibacy had charms and partisans, for an ideal disorder would not call forth so great rigor. It is remarkable that while celibacy was proscribed in Europe, it was authorized in the East. There celibates bore honorable names, were raised to high positions, and styled eunuchs of the sun and favorites of heaven. With the progress of civilization in Greece and Rome, the celibate state became more common, and custom triumphed over the laws. Thus often the men of letters, the philosophers, athletes, gladiators, and musicians, some from taste and some from necessity, renounced marriage. This was frequently the case with the disciples of Pythagoras and Diogenes. Celibacy was early regarded as a peculiar privilege and duty of the priesthood. Among the Jews, those who were intended for the service of the temple were permitted to marry, but under certain special restrictions. Among the Egyptians, the priests of Isis were bound to chastity. The gymnosophists and Brahmins of India, and the hierophants of the Athenians, lived in celibacy. There were maidens among the Persians consecrated to the worship of the sun, and vestal virgins among the Romans, who alone were permitted to guard the sacred fire. The celibacy of religious persons was regarded by the Greeks as a supernatural grace, applauded in sublime though vague terms, and no sacrifice was regarded as perfect without the intervention of a virgin.—In the primitive Christian church celibacy came gradually to be esteemed a higher state than matrimony. The early fathers, especially St. Jerome, enthusiastically celebrated the virtue of continence. From the time of the apostles there were persons in the priesthood who practised celibacy and esteemed

it a moral triumph. Yet there was no law nor uniformity of opinion or action on the subject, and it was not till the 4th century that even the higher clergy began generally to live in celibacy. The council of the Spanish and African churches at Elvira, in Spain, A. D. 305, commanded ecclesiastics of the 8 first grades to abstain from conjugal intercourse under penalty of deposition. A motion to the same effect was made in the general council of Nice, in A. D. 325, but it was rejected. Yet a tradition became prevalent about that time, that priests once admitted into holy orders should not afterward marry, and this practice being once established, led naturally to the opinions that persons who were married should not be admitted into orders, and that celibacy was a holier state than marriage. In the Latin church the usage of celibacy was most strictly observed. Near the close of the 4th century Pope Siricius forbade conjugal intercourse to priests without distinction, and this interdiction was repeated by the subsequent popes and councils. The emperor Justinian declared the child of an ecclesiastic illegitimate, and incapable of being an heir. The council of Tours, in 566, decreed that married monks and nuns incurred excommunication, and that their marriage was null. The Greek church opposed the action of the Latins, and has always recognized the marriages of priests and deacons which took place before their consecration. The monks, and the bishops who are chosen from among them, are unmarried. In the Roman church, councils were frequently occupied with rigorous measures against violations of the law of celibacy; and observance of the law was most strictly insisted upon under the pontificate of Gregory VII., who excommunicated every married priest, and every layman who should be present at a service celebrated by him. The reformers rejected celibacy as contrary to natural law, and permitted Protestant ministers to marry. Luther thought at first of maintaining the celibacy of monks, by reason of their vow, but afterward married himself. This innovation brought the question up again in the Catholic church, and although the emperor, the king of France, and many of the electors and princes were favorable to the marriage of priests, yet the council of Trent, which closed its sittings in 1563, decided finally to retain the discipline of celibacy. From that time the law has been absolute in the Roman Catholic priesthood. One who has been married cannot be ordained if his wife is living, unless a separation takes place between the parties by mutual consent. Those who have yet attained only the lower orders may renounce their benefices, forsake their orders, and be married; but it is otherwise with sub-deacons and the higher degrees. To such the pope alone, notwithstanding the indelibility of the character of priest, may grant permission to retire from the priesthood, and consequently to contract marriage.

CELL, the simplest form of organic life, from

which all vegetable and most animal structures are built up. Since the improvement in the microscope within the last 35 years, and more especially since the researches of Schleiden in 1837, and of Schwann a little later, the attention of physiologists has been unceasingly directed to the minute elementary structure of living things. The observers last named have shown that a cell, containing within it another cell (the *nucleus*), the latter containing a granular body (the *nucleolus*), is the primary form which organic matter assumes when it becomes an organic structure; the bodies of many animals and plants are composed entirely of cells, and the tissues of the embryo, in the first instance, consist of nucleated cells, which are developed into the dissimilar textures of the adult animal. However great the difference may seem between the animal and the plant, when seen by the unassisted eye and in their perfect form, they gradually approach each other as we descend in the scale, and finally meet in a common structure, the simple individual cell; and, when reduced to this, no one can say to which of the two great kingdoms it belongs. The microscope has revealed the great fact of unity of plan in this elemental structure throughout the organic world. In former times the power of spontaneous motion and the presence of a stomach were considered the distinctive attributes of animals; but we now know that most of the lowest vegetables possess this power at some period of their lives, and by the same hair-like filaments, or *cilia*, by which the lower animals move; while the sponge and some *protosoa* have neither the power of motion nor a proper stomach. No chemical element can be considered as a characteristic of the animal as distinguished from the plant; and we have seen that the primary cells are absolutely indistinguishable from each other. In the cell, however, is to be found the distinction between plants and animals, viz., in its power of development, in its destiny: in the plant, the cell, however changed in form and contents, always retains the characters of a cell; but in the animal the cell usually undergoes a development into tissues, in which the cellular form completely disappears. In the developed animal of the lowest type, where the distinction is the most difficult, the elements of nutrition are eminently characteristic; the simplest *protosoa*, which seem to be only a mass of living jelly, must feed upon organic compounds derived from other living things which are taken into the interior of the body; while all plants derive their nourishment from the absorption of inorganic elements by the external surface, and evolve oxygen, by the decomposition of carbonic acid, under the influence of sun-light; so that the simplest members of the two kingdoms, which cannot be distinguished by any peculiarities of structure, are separated physiologically by the phenomena of nutrition. Though the vegetable and the animal cell do not differ except in their ultimate development, it will render the subject more intelligible to begin with

the former, which is very easy to observe, and to ascend in the latter from the embryo cell to the perfect tissue. In many plants the individual is constituted by a single cell, living for itself and by itself; the higher plants are formed by an aggregation of such cells, each of which has its independent life beside that which it possesses as a member of an organism; so that, as Schleiden first maintained, in 1837, the "life-history of the individual cell is the first and absolutely indispensable basis of vegetable and animal physiology." What then is the vegetable cell, and how does it originate and multiply? It was the view of Schleiden and Schwann that around the preëxisting solid fundamental body (the nucleus) a membrane is formed, which expands and constitutes the cell. Dr. Burnett (in his "Prize Essay on the Cell," presented to the American medical association in 1851) considers that this is not always the case, and that there is another mode of cell formation, which is that the nucleated cell is simply one cell containing another within its walls; in his own words: "With Schwann the nucleus is exogenous and germinative; with me the nucleus is endogenous and reproductive." The two conclusions of the studies of cell life, according to Dr. Burnett, are: "1. The existence of an elementary particle, having an invariable unity of expression, the cell. 2. The universality of the application of this particle for the formation of organized parts, the tissues." The vegetable cell is a membranous vesicle containing a fluid. The cell wall is composed of two layers: an inner, called the "primordial utricle," first formed and the most essential to cell existence; it is thin and delicate, and of albuminous constitution; the outer layer is produced after the primordial utricle and its contents are enclosed, and takes no part in the formation of the cell; it is thick, strong, and principally composed of cellulose, a starch-like substance containing no nitrogen. The outer layer is merely protective, while the primordial utricle is engaged in the vital operations of the cell. The contents of the vegetable cell, more or less deeply colored, have been collectively called "endochrome," and consist of colorless protoplasm or organizable fluid containing albuminous matter, and in the interior a mere watery sap. The distinction between wall and contents cannot be made out in some of the lowest forms; sometimes the cell appears as a mass of endochrome, retaining its form by its own viscosity, the superficial layer gradually becoming consolidated, and the interior becoming more liquid; and this has been considered the way in which a cell is developed from a rudimentary mass of organizable fluid. The fungi, algæ, and lichens are composed of simple cells, globular in the lowest forms, but elongated in the higher types; each of these may maintain a separate existence and multiply itself almost indefinitely. In the flowering plants the structure appears more complex, but it is still only an aggregation of cells, differing from the simplest forms only in their power of being

developed into stem, leaves, roots, flowers, &c., remaining in mutual connection, but always, whether so-called spiral vessels, tubes, or fibres, merely modified or elongated cells serving distinct purposes. The name of cellular tissue is properly applied only to the fabric of plants, whose most important and active parts are made up of cells, the woody tissue being specially designed for mechanical support and for the conveyance of fluids; the pith, bark, medullary rays, and cambium are composed of cellular substance; this, in fact, is found wherever growth is taking place. The cells preserve their oval or globular form only when loosely aggregated, and become flattened and irregular as the tissue becomes consolidated. The cells have been named by botanists oblong, lobed, square, cylindrical, fusiform, stellate; the latter being found where lightness is desirable, as in the stems of water plants. The dimensions of these cells vary from  $\frac{1}{16}$  to  $\frac{1}{8}$  of an inch in diameter, but they are generally from  $\frac{1}{32}$  to  $\frac{1}{16}$  of an inch, and are held together by an intercellular substance analogous to the gelatinous layer between the cells of algæ. The woody fibre, in the last analysis, is only a variety of the cellular substance, being composed of elongated cells adherent by their whole length and hardened by the internal deposit of sclerogen. Such cells usually contain an evident nucleus, which assumes a brownish yellow color when treated by an iodine solution; the nucleus, or cytoblast, contains smaller cells, or nucleoli. In some low plants the single cells live isolated and distinct; others unite together into variously shaped masses; others join in a definite manner. In the vegetable kingdom the cells generally increase by division into two, each provided with its half of the primitive nucleus; each new cell secretes its own gelatinous envelope, and soon becomes free from its companion; sometimes the subdivision is so rapid that a series of cells is produced without gelatinous envelope, hanging on to each other; plants thus grow, the cells of the higher forms being developed into special organs. Generation in the lowest plants is effected by the union or fusion of a pair of cells, by a process termed conjugation, the membrane as well as the contents being completely fused; the two cells are fused into a single mass, the spore, which becomes the primordial cell of a new generation by the process of binary subdivision. One of the most remarkable properties of the vegetable cell, especially in the lower forms of aquatic plants, is the power of motion; this usually depends on the extension of the primordial utricle into thread-like filaments which impel the cell through the water by the contraction of their vibratory cilia; these motile cells were until recently considered animalcules. The contents of the cells of plants are of vast importance to man; at the head of these stand the oval granules constituting starch, the almost exclusive food of more than half of the human race; one of the most common of the cell contents is chlo-

rophyll, or green vegetable wax, the cause of the green color of plants, and existing in the leaves and young stems when not deprived of light; it is soluble in alcohol and ether, and forms a thin coating to the granules of the cell. In the leaves of water plants the circulation of the granular contents of the cells may be easily seen, passing up one side and down the other, never escaping into adjoining cells; the nucleus, with its nucleolus, may be distinguished from the rest by its larger size and its greater transparency. Elongated cells unite in many plants to form vessels containing milky secretions; among these are the juices whose concretion produces caoutchouc and gutta serena. Fixed oils are found as contents of cells, especially within the seeds, where they serve to nourish the embryo; among these are the coconut, palm, castor, croton, linseed, rape, and other oils, used in medicine and the arts. Cells also secrete volatile oils, camphor, gums, wax, and resins; they contain crystallized mineral substances, called raphides, usually salts of lime; also sclerogen, a gritty substance found often in the centre of pears, giving hardness to fruit-stones and nut-shells, and constituting the dense white substance known as vegetable ivory. The stings of plants, as of the nettle, are elongated cells containing an irritating liquid. The beautiful colors of flowers depend on coloring matters, usually fluid, contained within the cells. All plants, then, are made up of a primitive membrane existing in the form of cells, each provided in the young state with a nucleus or cytoblast and nucleoli, which by aggregation and modification make up all their tissues; each having an independent existence, and secreting whatever may be necessary for the perfection of the tissue of which it forms a part, or for the reproduction of its species.—In addition to what has been said before (in vol. i. pp. 522, 523, article ANATOMY), it may be stated that the animal cell in its simplest form lives independently of other cells, and requires for its growth to maturity nothing but a proper nutriment and temperature. Like the vegetable cell, it originates in a reproductive germ or granule, prepared previously by another cell, which organizes the nutrient particles in its neighborhood, and forms from them the cell wall and its contents, among which are reproductive granules, the germs of new cells to be set free by the rupture of its wall; unlike the vegetable cell, it cannot combine in itself inorganic elements, but must have an organizable nutrient fluid supplied to it, from which each cell selects the elements proper for the performance of its function. The animal cell has no cellulose wall, its contents being enclosed in a single membrane composed of albuminose; in its young state it contains a semi-fluid plasma, which may continue as such in cells of mere growth and multiplication, or may be displaced by the special product natural to the cell. It may multiply by binary subdivision, by the breaking up of its contents into several particles, or by the aggregation of the

molecules of the circulating fluids into masses whose exterior forms a cell wall, the interior becoming liquefied cell contents; this last can take place only in highly organized animals. The simple membrane of cells and basement membrane are structureless; after this come the granules or molecules, very minute, floating free like those in the chyle, or enclosed as in the nerve corpuscles, gland cells, and pigment cells; next to these simple structures come nuclei or cytoblasts, cells within cells, and sometimes with granular nucleoli; the blood corpuscles are vesicular nuclei, with walls of simple membrane, without nucleoli; the epithelium and pigment cells have nucleoli; the nuclei of the lymph and chyle corpuscles appear granular. Free nuclei are found in the gastric juice, in the gray cerebral substance, and in some quickly growing tumors; nuclei in cells (and each cell generally contains only a single nucleus) appear to be in contact with the cell wall, without any relation to the centre of the cell. The walls of animal cells coalesce to form tubes and sheaths, while in plants, according to Quekett, the cell wall is always present in the oldest and hardest tissues; and in the former, except in the true cellular tissues, the walls disappear and no trace may be left of the nucleus or nucleolus; in other cases the nuclei may remain attached to the inner surface of the wall. Nuclei are generally oval or round, and do not conform themselves to the different shapes of cells; but they are sometimes elongated and divided. In the fully developed blood corpuscles the nucleus has disappeared; in other instances, the disappearance of the nucleus is a sign of degeneration of tissue; in the yolk and milk cells, and in the cell products of disease, the contents are granular. In the chyle and lymph corpuscles the reproductive granules are set free by the bursting of the cell wall, and are in their turn developed into cells at the expense of the organizable materials of the fluids in which they float; similar granules in the plastic lymph of inflamed surfaces give rise to successive generations of cells by which the healing process is effected. The nucleus, where it exists, seems to be the chief instrument of the functional activity of the cell. In many cases the multiplication of cells is effected by the division of the nucleus, each portion giving origin to a new cell, as in the case of growing cartilage; where rapid growth is needed, and for a tissue of only temporary duration, a cluster of secondary cells is produced in the parent cell by the minute subdivision of the nucleus, as in the case of the cells of secretion in the glandular organs, and, according to Dr. Barry, of the primary development of the embryo; but in all cases cells must take their origin in germs prepared by a previously existing cell.—As the cell is the type of organization, we must expect to find in it the first rudiments of the embryo; the cell containing these rudiments is the *ovum* or egg; it is a cell enclosing a second, within which is a third of granular consistence; the first is the vitelline.

membrane, the cell wall; the second is the germinal vesicle, or nucleus; and the third is the germinal spot, or nucleolus. The embryo becomes an aggregate of cells precisely in the manner that all animal cells grow, viz.: by the development of new cells within the old from the subdivision of the nucleus, and by the aggregation of intercellular granules into nuclei which form cells. From the cells are formed the tissues; in those consisting of fibrous elements the cell walls become elongated and minutely folded; in muscles, nerves, and smallest blood-vessels, the cells are joined end to end, their walls coalesce, and their cavities communicate; in these cases the nuclei are generally persistent, though altered in form. Hanle is of opinion that the white fibres of cellular tissue (see *CELLULAR TISSUE*) are derived from the cell wall, and the yellow fibres from the nucleus; according to Todd and Bowman, the basement membrane of the skin and other parts is formed by the flattening and fusion of the cell walls. In bone we have seen that the nuclei form the *lacunæ* from which the *canaliculi* are prolonged, and in cartilage they remain in the cell cavities, contributing probably to its nutrition and growth. There does not appear to be any actual conversion of the cell wall or the nucleus into the proper elements of tissue, which depend on organizing processes connected chiefly with the cell wall. The corpuscles of the blood are formed in the first instance from the embryo cells of the vegetative layer in mammals and birds, and of the inner surface of the vitelline membrane in the lower vertebrates. The cells of bone, of the brain, and of cartilage, have already been described under those heads.—The principal tissues in which cells continually exist are in fat, coloring matter, skin and mucous membrane, and secreting glands. Adipose tissue consists of cells with walls of structureless membrane, containing fat, globular when single, variously flattened under pressure, and without perceptible nucleus except in the embryo; this tissue is capable of rapid growth, as is familiarly seen in fatty tumors. Coloring matter in vegetables may exist in the cell wall, as in some ferns, or in a contained fluid, as in chlorophyll generally; fluid coloring matter exists in the blood cells, but pigment usually occurs in the form of granules. The pigment of the choroid coat of the eye consists of innumerable granules, about  $\frac{1}{1000}$  of an inch in diameter, enclosed in 8-sided cells, the depth of color being in proportion to the quantity collected in a certain space within the cell; the coloring matter of the skin is also enclosed in hexagonal cells. The epidermis, or external covering of the skin, consists of several layers of cells, incessantly produced from below and constantly thrown off by desquamation from the surface; these cells, spherical in contact with the corium, become flattened into flat scales on the surface, without trace of nuclei. All the naturally free internal surfaces of the body are provided with constantly forming and falling outcues, called epithelia, always in

contact with fluids; these are produced by a regular exudation of cells, tessellated or pavement-like on the delicate serous and synovial membranes, on the lining of the bloodvessels, and in some parts of the mucous membranes; and cylinder-like in the intestinal canal, at the cardiac orifice of the stomach, and in the larger ducts of glands and other secretory organs. The free surface of the outermost cells is in some parts covered with delicate movable cilia, as in the mucous membrane of the air-passages. By means of such minute cells the most important functions of nutrition, reproduction, and secretion are performed; the process of reparation is effected through them, and, unfortunately, many diseased and malignant growths are formed by the same organic cells. Since the time of Schwann and Schleiden it has been generally admitted that the nucleated cell is the agent of the most important living processes, both in plants and animals, from their embryonic origin to their final development. The act of secretion in glands is performed by nucleated cells, which grow by appropriating to themselves the proper elements, prepare the material of their peculiar secretion, and by their rupture discharge it into the glandular ducts and receptacles; the continuance of the secretion depends on the successive development and degeneration of the constituent gland cells. The reproductive cells are developed in the male in the testes, in the female in the ovaries. Absorption from the intestinal mucous membrane, as far as chyle is concerned, is effected through clusters of minute cells, which take up the nutrient products of digestion, and reversing the course of the secretory process, convey them into the lacteals; during the presence of chyle these cells grow, select, absorb, and prepare the nutrient material, and then by their rupture give it up to the lacteals; in the blood, the lymph and chyle corpuscles convert the albuminous matters into fibrine, which they set free by their own constant dissolution; and finally, the red corpuscles, another set of cells, effect the interchange between oxygen and carbon in the lungs and tissues, or perform the function of respiration.—As each cell has its period of life, we may easily understand the nature of the continual process of growth and decay going on in the living organism. The absorbent, secreting, and fibrine-elaborating cells are very transient in their existence; the cells of organs which give mechanical support, as of the heart-wood in plants and of the bones of animals, have an indefinitely prolonged existence; the cells from which the muscular and nervous tissues originate are at first not different from ordinary cells, but they have a power of transformation impressed upon them from the beginning, in virtue of which they soon assume a peculiar aspect. The life of the cells of those tissues in which the most active vital changes are going on, as the nervous and the muscular, is uniformly the shortest; and this is of much practical importance to those who are obliged to stimulate the brain to in-

creased functional activity. The faster any tissue is made to live, the shorter will be its life, unless the repose necessary for reparation be ample. As in the lower fungi and the early stages of embryonic development, cells occasionally proceed to the work of multiplication with extreme rapidity, neither the primary nor the secondary cells undergoing any further change; this distinguishes fungoid or malignant growths from healthy structure.—For cell pathology and minute investigations into the history of the cell, the reader is referred to Dr. Burnett's "Essay;" he regards pathology as an erring physiology, it being impossible to distinguish the cells of either as to their origin and general aspect; the difference relates to their destiny, not to their structure.

**CELLAMARE**, ANTONIO GRUÑON, prince of, duke of Giovenazzo, a Spanish diplomatist of Genoese origin, born in 1657, in Naples, died May 16, 1733, in Seville. Brought up at the court of Charles II. of Spain, he afterward fought the battles of his successor, Philip V., against the imperialists. Taken prisoner in 1707, he was detained until 1713. Three years after his return to Spain he was sent to France as ambassador. Here he joined in the conspiracies planned against the duke of Orleans, with a view of vesting the regency of France in Philip of Spain, but the plot was discovered, and the seizure of Cellamare's despatches laid bare the whole details. He was sent out of France at once, and on his return was appointed captain-general of Old Castile, a post which he retained until his death.

**CELLARER** (Lat. *cellarius*), under the Roman emperors, a functionary who examined the accounts, and to whom was committed the care of their domestic affairs. The name was subsequently given to the purveyors or agents for prelates and monasteries. The cellarer was one of the 4 great officers of monasteries, and had under his orders the bake-house and the brew-house. He regulated the harvesting and storing of the corn, and managed the whole economy of the provisions. His compensation was  $\frac{1}{4}$  of all the grain received, and a furred gown. The office was sometimes held by persons of illustrious birth; thus Philip of Savoy, in 1343, was cellarer to the archbishop of Vienna.

**CELLARIUS**, CHRISTOPH, a learned German, born at Schmalkalden, Nov. 22, 1638, died in Halle, June 4, 1707. He devoted himself so closely to the study of the oriental languages and literature, that it is related of him that during the 14 years he spent at the university of Halle, he only once went out for a walk in the streets. He edited more than 20 Greek and Latin classical works, and wrote several volumes on the grammar, geography, history, and languages of oriental countries.

**CELLE** (Ger. *Zelle*), capital of the bailiwick of the same name in Hanover, district of Lüneburg, on the Aller, which is here navigable, and on the Hanover and Brunswick railway; pop. 12,100. It is a well-built and paved town, the

seat of the supreme court of Hanover, contains churches of different denominations, an old castle formerly occupied by the dukes of Lüneburg, a medical college, 2 public libraries, an agricultural society, and various other public institutions. Celle is also noted for its annual horse races. The famous stud of the king of Hanover and the house of correction are near the town. In the castle park is the mausoleum of Matilda, queen of Denmark, who died here. The inhabitants are employed in the manufacture of tobacco, cigars, stearina, &c., and carry on a brisk transit trade in wool, wax, honey, and wood.

**CELLINI**, BENVENUTO, an Italian artist, born in Florence, in 1500, died there Feb. 25, 1570. Intended for the musical profession, to which his father was devoted, he gave the preference to the pursuits of a goldworker and engraver. Endowed by nature with a skilful hand and a fertile fancy, he soon distinguished himself in chasing sword handles, cutting dies, and engraving medals. But his headstrong disposition tended to involve him in brawls and quarrels, which were free however from malice, and frequently blended with a charming vein of drollery and audacity. His debut in the sphere of art went thus hand in hand with his exploits in the field of duelling, and at the age of 15, when his genius had already excited the admiration of his townsmen, he was banished to Sienna. After wandering for some time from one town to another, he eventually found his way to Rome, where a gold medal of Clement VII., of which he had furnished the die, secured him a favorable reception at the papal court. The pope took him into his service, and this position gained him abundant employment in cutting seals for many eminent prelates. He also took part in the defence of the castle of Sant' Angelo, Rome being at that time the theatre of conflicts between Charles V. and Francis I., and Cellini was fond of boasting that he had killed the constable of Bourbon and the prince of Orange. At any rate, when he left Rome he had added the laurels of a soldier to those of an artist. At Mantua, where he remained until an affray compelled him to leave the town, he became acquainted with Giulio Romano, and through him with the grand duke, who gave him some commissions. On his return to Florence, where his military exploits at Rome had reinstated him in the good graces of the authorities, he formed an intimacy with Michel Angelo; but his violent temper again embroiled him in a quarrel, which compelled him to leave in disguise for Rome. While at Florence, he devoted himself principally to the execution of medals, the best of which are Hercules and the Nemean lion, and Atlas supporting the globe. At Rome, he was appointed engraver to the mint, but soon found himself again in trouble. This time a mistress of his named Angelica, who had fled to Naples, seems to have roused his wrath. He followed her to Naples, but on receiving the pardon of the new pope (Paul III.) returned to

Rome, and remained for a considerable time in his service, although the pope's natural son, Pier' Luigi, was hostile to him, and caused him to be imprisoned upon a charge of having robbed the castle of Sant' Angelo during the war. Through the interference of the cardinal of Ferrara he obtained his pardon, after having previously effected his escape. Subsequently he was employed in France, at the court of Francis I., until his differences with the duchess d'Étampes prompted his return to Florence, where the grand duke Cosmo de' Medici supplied him with a studio. Here he commenced his celebrated "Persens," which, as soon as it was exposed to public view, created the utmost enthusiasm. He was now employed upon many important works, which did not permit him to accept a proposition made to him by Catharine de' Medici to superintend the execution of a monument to be dedicated to Henry II. He remained in the grand duke's service until his death, and was buried with great pomp in the church of S. Annunziata.—His autobiography, interesting as a record of the incidents of his stirring life, and of the history and manners of his times, has been translated into German by Goethe, into French by Farjasse and A. Marcel, and into English by Nugent. The best edition is that of Carpani of 1812, translated into English by Roscoe. Cellini also left MSS. on various branches of art, and the academy della Crusca quotes him frequently as a classic. The best part of his artistic works are his smaller productions in metals, the embossed decorations of shields, cups, salvers, ornamented sword and dagger hilts, clasps, medals, and coins; and the most celebrated specimens of his skill in these branches of art, in which he showed himself a close student of Michel Angelo's works, are a richly ornamented salt-cellar in the imperial gallery at Vienna, and a magnificent shield at Windsor castle. Of his larger works, the bronze group of Persens, with the head of Medusa, in the Piazza del Gran' Duca in Florence, and his "Christ" in the chapel of the Palazzo Pitti, are the most prominent.

**CELLULAR TISSUE**, a name given by the older anatomists to a tissue formed by a mixture of white and yellow fibres, extensively diffused in the animal body under the names of cellular, fibro-cellular, areolar, and fibrous tissue; the best name is areolar tissue, derived from the appearance of *areola*, or meshes, left between the intricate crossings of the component fibres; these were formerly mistaken for cells. This tissue, like others of the living organism, takes its origin in cells, but in its developed state it consists of fibres, whence it is called fibrous tissue by some anatomists; the old term, cellular tissue, is so well and universally understood, that, though inaccurate, it will probably long be employed in this application. Its principal use seems to be to connect other tissues, allowing at the same time more or less freedom of motion between them; it supports the vessels and nerves in their minutest

branches; it is abundant under the skin and the mucous and serous membranes; it enters largely into the formation of membranes, hence often called cellular membranes, protecting the organs and cavities by their toughness and elasticity. The spaces of the cellular tissue are continuous throughout the body, as may be proved by artificial inflation by the blow-pipe, and as is frequently seen in cases of emphysema and anasarca, where air or fluid is effused into its meshes. Under the microscope this tissue presents 2 kinds of fibres, inextricably mingled in various proportions. The one is white and inelastic, disposed to a waved or zig-zag arrangement in bands of unequal thickness, creased longitudinally by numerous streaks; the largest of these bands are often  $\frac{1}{10}$  of an inch wide; the component fibres do not branch, according to Hassall; this is the white fibrous tissue. The other kind of fibre is elastic, of a yellowish color, composed of branched filaments disposed to curl when not put on the stretch; they are generally about  $\frac{1}{1000}$  of an inch thick, interlacing with the others without becoming continuous with them; this is the yellow fibrous tissue. These 2 elements of the cellular tissue may be at once distinguished by submitting it to the action of dilute acetic acid, which instantly causes the former to swell up and become transparent and soft, while it causes no change in the latter. In the earliest periods of its existence Schwann and most other observers describe the cellular tissue as originating in nucleated cells of an elongated form, from the ends of which fibres proceed, the cells themselves afterward being absorbed; according to Hassall, the cells exist first as nuclei, around which the cell wall makes its appearance, assuming a fusiform shape, and giving rise to unbranched or branched filaments as the fibre belongs to the white or yellow fibrous tissue. Cellular tissue is especially abundant in parts which enjoy free motion, as in the face about the eyes and cheeks, the interior part of the neck, the arm-pit, the flexures of the joints, the palm of the hand, and the sole of the foot; the superficial and most movable muscles are separated by thicker layers than the deep-seated ones, and the constituent fibres are held together by it during contraction; almost every part of the vascular system is held in place by this tissue, whose elasticity protects the vessels during the necessary movements of the body; even its own minute but numerous vessels are conducted and enveloped by this all-pervading tissue. It is difficult to say where cellular tissue is not found, unless it be in the teeth, in bone, in cartilage, and in the cerebral substance, where its presence would be manifestly useless. The internal vital organs most exposed to external violence are protected by large quantities of this substance, as the pancreas, kidneys, colon, and genito-urinary apparatus; every organ has its investing covering of cellular tissue, and its processes of the same penetrating and holding together

its component parts. It is especially abundant just under the skin, to facilitate its movements, and it exists in uncommon quantity about and in the interior of the mammary glands. Thus, this tissue seems to serve as a bond of union between parts, as an element of strength and protection rather than as a substance of primary importance in itself; wherever elasticity is required, the yellow fibrous tissue is most abundant, while the white fibrous tissue prevails in parts demanding resistance and tenacity; and the openness of the meshes is in proportion to the amount of mobility needed. The amount of cellular tissue varies with age and temperament, being greatest in youth and least in old age; the plumpness and roundness of the arms in children and females depend on the presence of this substance around the joints, which in man are prominent and angular; a full diet and habits of indolence cause its accumulation, while abstinence and exercise tend to diminish it. Like other soft solids, it contains much water in its interstices, which is favorable for the free movement of the fibres; an unnatural increase of this fluid in the subcutaneous cellular tissue causes the form of dropsy called *anasarca*, so common about the feet and ankles, and indicated by the skin pitting under the pressure of the finger; in the English training process it is rapidly lessened, with a remarkable diminution of the bulk of the body; its natural and slow disappearance is seen in old age and in chronic disease, in which the skin, especially about the face and neck, becomes wrinkled and flabby. Its power of reproduction is great, and it is rapidly formed both in healthy and morbid growths; it undergoes the putrefactive process slowly, and when boiled yields gelatine from its white fibrous element.—So extensive a tissue as this must of necessity become involved in many diseases; it is subject to all the effects of inflammation, with suppuration and mortification; to the infiltration of blood, serum, air, and urine; to induration, tumors, and unnatural increase and degeneration. In common inflammation of this tissue, the capillaries become congested, and a part of their contents escapes, more or less tinged with blood; the coagulable lymph thus effused causes the hardness of circumscribed inflammation; this may be removed by absorption, or may become softened by the deposition of purulent matter, constituting an abscess, whose walls are formed by an indurated layer of the tissue which prevents the pus from spreading indefinitely. When an abscess is formed, the cellular tissue between it and the surface of the skin is removed by ulceration or absorption, or the pus is evacuated by the knife; when from excess of inflammation or other cause the capillary circulation is permanently suspended, the vital properties of the tissue are destroyed, and mortification takes place, the dead parts being removed in offensive fluids and pulpy shreds. In chronic inflammation the cellular tissue becomes indurated. In

debilitated conditions of the system, after poisoned wounds, and in certain epidemic alterations of the air, the usual barrier of circumscribing lymph is not effused, and the products of inflammation spread extensively through the areolæ of the subcutaneous and internal cellular tissue; this is familiarly seen in phlegmonous erysipelas, and constitutes a most dangerous disease from the extensive suppuration and sloughing of the tissues. In wounds of the lungs a communication is often established between the air-passages and this tissue, when the integuments are variously raised by the infiltration of air in the areolæ, constituting external emphysema; a similar condition is artificially produced by the butcher when he blows up his meat. It grows with such rapidity that tumors, often of large size, are developed from it; most so-called "fibrous" tumors are composed of this tissue; in such cases the microscopist is able to detect the fusiform cells and the mass of fibres in process of formation from what was once the cell wall.

CELSUS, an Epicurean philosopher of the 2d century, the author of a work against Christianity, a large part of which has been preserved in the answer to it written by Origen. Skilled in both the Epicurean and Platonic philosophies, he was full of contempt for the new religion, and argued *a priori* against its doctrines. By ingeniously confounding the views of the numerous sects, and by the most intrepid assertions, he ridiculed and travestied in a grotesque manner the facts related by the evangelists. The refutation of his work, composed nearly a century later by Origen, is esteemed one of the most valuable of the patristic writings.

CELSUS, AULUS CORNELIUS, a Roman author, who lived probably during the reigns of Augustus and Tiberius. He wrote a kind of cyclopædia *De Artibus*, containing a series of treatises on rhetoric, history, philosophy, jurisprudence, war, agriculture, and medicine, of which, beside some fragments, only that on medicine is still extant. Of the 8 books of this work, in which he made known the system of Hippocrates, following beside Asclepiades and the Alexandrians, the first 2 treat of diet, and the general principles of therapeutics and pathology; the rest of particular diseases and their treatment, as well as of surgery. Of its numerous editions, those by Fortius (Florence, 1478), Milligan (Edinburgh, 1826), and Ritter and Olbers (Cologne, 1835), are the most valuable.

CELTAÆ, OELTA, a people who came into Europe from the north-east, whose earliest migrations were entirely prior to the historic ages, and whose origin and primal seats are unknown, although modern philology has established that they came originally from Asia, and that their dialects belong to the great Indo-European family of languages. The persons who carried to Athens the tidings of the sacking of Rome by the Gauls, who are identical with one tribe or division at least of the Celts, related that Rome had been taken by a great host of Hyperboreans, that



term signifying only a people who dwelt beyond the unknown mountains of the north—the point of the compass being changeable at will, in reference to the place of the speaker. Thus, to the earliest Italians it is probable that the Rætian and Euganean Alps were the Hyperborean mountains, as it is clear that those ranges long shut them out from all knowledge of the movements of the wandering tribes to the northward of them. As geographical knowledge and civilization extended to the northward, the Hyperbo-reans receded to the Hartz mountains, and the Sudetic and Carpathian chain, for the Italians and for the Greeks of Hellas; while for those of the coasts of the Black sea and of the Crimea, they retired even to the Ural and Altai mountains. When Herodotus first wrote of the Celts, about 440 B. C., he only knew of them as dwelling in the extreme north-west of Europe, at so vast a distance that he believed them to have been seated beyond the pillars of Hercules, and he evidently imagines their migrations to have been from the west eastward; but in modern times the direction and course of all the great migrations have been so thoroughly investigated and cleared up, that we have no hesitation in pronouncing the assertion of the old Greek author to be an error, and in asserting, on the contrary, that no great migration or irruption of barbarians ever travelled, on the most extended scale, from the west easterly, although in some irregular local movements, in working southward, they may have temporarily assumed an easterly direction—as, in entering Italy from the northward, they must necessarily have done, owing to the trend of the land. If, however, as there is much cause to believe, the Cimmerii, who entered and long held the Crimea, were Cimbric Celts, we know that so long ago as the reign of Ardyx, king of Lydia (878–839 B. C.), they entered Asia Minor, necessarily from the eastward, since they were land journeyers and not seafarers, and held Sardis until expelled from it by Alyattes, the contemporary of Cyaxares, in the end of the 6th century before Christ. But they held yet longer to the Crimea. It has been stated above that the Gauls and the Cimbric Celts, and in order to show that fact satisfactorily, it is necessary to have recourse both to etymology and ethnology; this, however, can be done briefly and simply. In relation to the first, it is necessary to remark that much difficulty has arisen in tracing the origin of words deducible from the Greek, from our having adopted the Latin *c*, which even in that language had no doubt the hard sound, to represent the Greek *κ*, which had not nor could have had any other; and in the same manner the Latin *g*, which had perhaps a variable sound, to represent the Greek *γ*, which had invariably the hard sound of the letter. That is to say, the Greek *κ* is invariably the English *k*, and the Greek *γ* invariably the English *g* as used in game or gun, never as in gender or in gin. Our *c* then and our *g* being both commutable from hard to

soft, wherever either of them precedes the vowel *i* or *e*, we give a sound to the consonant and the word diametrically opposite to the sound given by the Greeks. This has led to the fact that words which in the Greek tongue are at once seen and recognized to be identical, with us appear to have not the smallest possible connection. The Greek word which the Romans translated into Galli, which we render Gauls, and which is palpably the name by which the Scottish Highlanders still designate themselves, Gael, is Γαλαται, Galatai; that which the Romans translated into Celts and we render Celts, is Κελται, Keltai; those which the Romans translated Cimmerii and Cimbric, and which we render in the same way, are Κιμμεριοι and Κιμβροι, Kimmerioi and Kimbroi, the latter almost identical with the name given to themselves by the modern Welsh, who are known to be a Celtic tribe, Kymri. Again, we find that the Gauls who invaded Rome, Greece, and Asia Minor in the 4th and 8d centuries B. C., are variably called Galatai and Keltai, the former name being generally limited to that portion of those races which entered Asia Minor, and effected a lodgment in that part of it which from them took the names of Galatia and Gallo-Græcia; and that both the great invading bodies—that which occupied for many months all Rome with the exception of the capitol, and that which was repulsed from Delphi—were commanded by men whose name, as it is delivered to us by the Greek and Roman historians, is identical with the Celtic title equivalent to king or chieftain. Now from these various facts we find that, in the early part of the 8d century before Christ, the Greeks only knew the Kelts as settled in the extreme north-west of Spain and along the south-western shores of France, and that at nearly the same period a vast simultaneous irruption of these barbarians poured down upon civilized Europe from the northward. Naturally, therefore, they believed the invaders to come from the places in which they were known to be settled of old, and to have travelled always from the west eastward, instead of making their way, as they really did, from the north-east westward, and only coming upon the northern frontiers of civilization. The same idea seems to have prevailed in reference to the Kimmerii, to whom Herodotus also ascribes an easterly course toward Asia Minor, evidently for no other reason than that he found them still settled in the Crimea after their expulsion from the southern extremity of Asia Minor; and, conceiving the Crimea to be their original seat, naturally supposed that they had marched eastward along the northern shores of the Euxine, and thence southerly between the head of that sea and the Caspian, into lesser Asia. Whereas, the true invasions of both regions were probably made at the same time, and from the north-east, the migrating hordes taking some the lower, some the upper side of the Black sea. But those who came to the southward were speedily expelled,

having entered rich, populous, well-armed countries, of the most ancient civilization of the world, having walled cities and fortresses, capable of enduring long sieges, as was the case with Sardis. Those, on the contrary, who passed to the northward rolled onward to the extreme west, leaving the small colony in the Cimmeric Chersonese which long held its ground there, owing to the wild, desolate, and inhospitable nature of those regions, alternating between barren sandy deserts and deep pestilential swamps and salt marshes. It is possible, if not probable, that the Cimbric Chersonese, or peninsula of Jutland, was peopled by a branch of the same hordes, which travelled yet further to the north, through the vast forests far beyond the furthest ken of the incipient civilization of those days. Now, regarding the matter in an ethnological point of view, Diodorus tells us that under the common name of Gauls the Romans included 2 grand divisions of one and the same people, the one consisting of the Celts of Spain, of the south and centre of Gaul, and of the north of Italy; the other, of the tribes inhabiting the shores of the ocean, the skirts of the Hercynian forest, and eastward so far as to the frontiers of Scythia. By the Hercynian forest appears to be intended all the great tract of forest, mountainous and marshy country, extending from the Rhine in the neighborhood of the lake of Constance to the swampy shores of the Oder and the Weser. This latter division, he says, were the proper Gauls, the other were to be called Celts. Diodorus further says, that to these more remote tribes belonged the Cimbric, whom some writers identified with the old Cimmeric, and that these Cimbric were the people who took Rome, sacked Delphi, and carried their conquests even into Asia. In the Cimbric and Teuton wars with Marius and Catulus, these people had been evidently pressing down from the northward, with a generally western direction from the Hercynian forest; and the portion which the former general defeated on the putrid plains near Aix in Provence, was merely the reflux ebb of the tide which had rushed through all the length of Gaul, and had been repulsed by the Iberian and Celtiberian nations from the passes of the Pyrénées. When Cæsar conquered Gaul, we learn from him that the whole country was divided between 8 great tribes: one, which he calls the Gauls, placed exactly where Diodorus places his Celts; another, which he calls the Belgians, nearly where Diodorus places his Cimbric; and yet a third, which he calls Aquitani, along the base of the Pyrénées. On invading Britain, he again found Belgians or Cimbric along the eastern and south-eastern shores, and learned that there were Gauls further inland. Now, in all this there are only two palpable difficulties: the one, the declaration of Diodorus that the Cimbric or Kymri were Galli or Gael, in opposition to being Celts; the other, that he ascribes the taking of Rome and attack of Greece to Kymri, not to Gael. On the latter of these difficulties

little appears to turn; and on the former less depends than appears at first sight. The whole is reduced to a simple confusion of a single name in an account, perfectly consistent in other respects, of one writer, and to the consistency of all accounts with the distinctions which we find existent in the still existing races. All these writers agree as to the existence of 2 grand divisions of the Celtic peoples of France, distinct from each other in tongue and in many of their habits: the northern or maritime tribes and the inhabitants of the British coasts, whom Diodorus calls Cimbric, and Cæsar Belgians; and the inland and southern tribes, whom Diodorus calls Celts, and Cæsar Gauls. Now we find that along the northern shores of France the Kymric race still exists, in Brittany more especially, and is nearly identical with the Welsh Kymri, to the extent even of their being able to make themselves mutually understood, whom we know to have dwelt along the southern shores of England, exactly where Cæsar plants his Belgic Britons, until they were expelled thence, and cooped up in the hill fastnesses of Wales by the invading Anglo-Saxons. We know also that another Celtic tribe, known as the Gael, whom Cæsar calls Gauls, did inhabit the central, and do still inhabit the northern parts of the island of Great Britain, while the adjacent island of Ireland is also occupied by a Celtic race having close affinities of tongue with the Gael, but hardly any with the Kymri; these, whom we call the Erse, as also another tribe of Celtic origin, said by some authorities to be the purest of all the lately existent Celtic tribes, who inhabited Cornwall, have some unknown foreign cross, possibly of Iberian blood. All the statements, therefore, agree with one another and with present circumstances, except in the solitary statement of Diodorus that the Cimbric or Kymri of the coasts were pure Gael, and that the Celts were not so; as also that the Kymri were those Gael who took Rome, pillaged Delphi, and invaded Asia Minor. This seems a most natural and simple confusion of the names of 2 kindred tribes of Celtic race, by a writer who did not understand their tongue. The 2 tribes really were the Kymri and the Gael, both equally Celts; whom he confuses into the Kymri or Gael and the Celts, admitting at the same time that both divisions were one people, Celts. Cæsar, on the other hand, makes them all Gael, but Belgic, that is to say Kymric, and Celtic Gael; and when we come to the undoubted truth that the words Gaelic and Celtic are in their origin the same, the discrepancy is of little value. Now it is probable, from a review of all these circumstances, that so early as the 6th or 5th century before Christ there was a westward Cimbric or Cimmeric invasion of eastern Europe, a small portion of which, passing downward into lesser Asia, was expelled or exterminated, while the great masses passed on to the westward, far to the north of the few civilized nations of southern Europe, along the northern bases of the Balkan and Carpathian

ranges, to the shores of the Baltic and of the North sea; that kindred tribes of the Celtic peoples, whom we know as Gael, either at the same or at a later period, passing in the same direction, but somewhat lower toward the south, occupied all the central and southern parts of France, established themselves on the shores of the bay of Biscay, and possibly on the coasts of Morbihan and Brittany, beside occupying the whole of the island of Britain, and penetrating into the interior of Spain. These are the Celts of whom Herodotus speaks as settled on the north-western ocean, beyond the pillars of Hercules. In the 4th century B. C. another great passage of the hordes took place, known as the Brennic invasions, into the north of southern Europe and as far as Galatia into Asia. Whether this was Kymric or Gaelic it is impossible to determine, but there appears no reason for doubting that its general course was in the precise track of the former migrations; that in all probability both tribes, Kymri and Gael, were concerned in it; and that the Kymric portion held to the northward, the Gaelic to the southward of their line of march. Thereafter a continual pressure of the Kymri from the peninsula of Jutland, the Cimbric Oheronese, seems to have ensued previous to the last century before the Christian era, along the shores of the North sea and the channel, which occupying both shores drove the Gael back in both countries, France and England, from the seaboard, and occupied all the coasts of northern Europe, from the mouths of the Elbe and Rhine to Cape La Hogue, and from the South Foreland to Portland Bill. In the time of Marius, this vast torrent—having been beaten back from Spain, which they had attempted to conquer, and which had been conquered and overrun by a new people of unknown origin, the Iberians, who had hemmed up the original Celtic inhabitants in the central fastnesses of the Sierra Morena, and who had even crossed the Pyrénées and established themselves about the Adour and Garonne—came rushing back in vast multitudes, numbering their fighting men by many hundreds of thousands, principally Kymri, although swelled by Teutonic and Gaelic swarms who had joined the march, and precipitated themselves on the north-western frontiers of the Roman empire, only to be utterly annihilated and dispersed by the discipline of civilized men, whom now for the first time they fairly encountered. From this time their career as a migratory and conquering people is at an end. The Romans sought them out and subjugated them in France, in Spain, in Britain. After the fall of the Roman empire, the Danes, the Anglo-Saxons, and the Normans annihilated them in Great Britain, all but a remnant of the Kymri in the Welsh mountains, and of the Gael in the Scottish highlands. In France and Spain, successive irruptions—in the former of Burgundians, Franks, Goths, and Normans; in the latter of Vandals, Goths, and Saracens—subjugated them first, and then intermarried with them

to so large an extent that, unless in a small portion of Armorica or Brittany, no continental race exists in which the Celtic blood has an equal share, much less a majority; that portion is Kymric. The Celtic race at the present day exists in a pure state only in the Kymric in Wales and Cornwall, in the Gaelic in the Scottish highlands, and in the Gaelic in its Erse variety in Ireland. In its mixed form of the Kymric it is found in Brittany; of Gaelic, in an infinitesimal and hardly appreciable proportion in all the centre and south of France, and in a still inferior degree among some of the hill races of the interior of Spain. Much disputation has arisen on one point in recent times, as to the identity of the Celtic and Cimbric races of the present day with the tribes which struck such consternation into the civilized men of southern Europe between the 4th and 3d centuries before Christ. But much stress has been laid on trifles, as will be judged on a perusal of the following extract from Dr. Arnold's "History of Rome." "There is one point, however," he says, "in which the difference between the Celtic race in ancient and modern times has been unduly exaggerated. The Greek and Roman writers invariably describe the Gauls as a tall and light-haired race in comparison with their own countrymen; but it has been maintained that there must be some confusion between the Gauls and Germans, inasmuch as the Celtic races now existing are all dark-haired. This statement was sent to Niebuhr by some Englishman; and Niebuhr, taking the fact for granted on his correspondent's authority, was naturally perplexed by it. But had he travelled ever so rapidly through Wales or Ireland, or had he cast a glance on any of those groups of Irish laborers who are constantly to be met with in summer on all the roads in England, he would at once have perceived that his perplexity was needless. Compared with the Italians, it would certainly be true that the Celtic nations were, generally speaking, both light-haired and tall. If climate had any thing to do with the complexion, the inhabitants of the north of Europe in remote times may be supposed to have been fairer and more light-haired than at present; while the roving life, the plentiful food, and the absence of all hard labor must have given a greater development to the stature of the Gaulish warriors who first broke into Italy, than can be looked for among the actual peasantry of Wales and Ireland." For the rest, the mental characteristics of the race appear to be entirely unchanged from their first appearance to the present day. They are these: dauntless personal courage, extreme recklessness of human life, proneness to be moved either to tears or laughter, quickness of perception and readiness to undertake, combined with slowness to reason and impatience to persist or endure; readiness of wit, copiousness of words, liability to violent fits of headlong passion, great fickleness, want of enduring attachments or resentments, greater adherence to the sept

or clan than to the family; little constructive-ness, little tendency to legislation, to art, unless to the rudest music and to wild ballad poetry; remarkable female chastity, and great adherence to the race, its habits and traditions.

CELTIBERIANS, *CELTIBERI*, a people of the interior of Spain, who seem to have occupied Aragon, and portions of Old and New Castile and Navarre. Every thing concerning their origin, the places whence they came, and their connection with other races, is exceedingly obscure. According to Diodorus Siculus, they were composed of 2 nations, the Celtæ and Iberi, whence they were called Celtiberians; but whether he intends to say that the people, for it deserves that name, was made up by a fusion of 2 tribes or races into one nation under one polity, or that the whole people had gradually grown up from the mixture of 2 bloods by intermarriage, does not appear. The Romans found in Spain, when they dispossessed the Carthaginians, 2 Celtic tribes, as such, still existing pure and unmixed, one on the Anas or Guadiana, in the south-west of Spain, and one on the Minho, in the north-west of Portugal, and beside these the Celtiberians, who occupied the country lying about the head waters of the Tagus, extending northward to the Ebro in the vicinity of Saragossa, and nearly surrounded by the precipitous ranges of the Castilian mountains, of the Sierra Blanca, and the eastern roots of the Sierra Morena. The 2 other Celtic tribes referred to, it is worthy of remark, are situated in still more difficult mountain fastnesses, the former among the spurs of the Vilheercas or Toledo mountains, the latter in the intricate and almost impregnable hill country of Galicia and Leon. "With regard to these 8 nations," Niebuhr remarks, "it seems to have been the universal opinion that the Celts crossed over the Pyrénées as well as the Alps, and that from their intermixture with the Iberians, whom they conquered, sprang the nation in whose name this intermixture is expressed; while a part of their host settled on the Anas, and some of these went forward to the Minius. But not the slightest trace is to be found of any story concerning this expedition. The notion was probably nothing more than a conjecture made by foreign historians with regard to a nation which had spread so far beyond its borders on other sides."

**CEMENTATION**, the term applied to the preparation of steel, which consists in covering bars of iron with fine charcoal, and subjecting the whole to long continued red heats till a portion of the carbon has entered into and combined with the iron. It is also applied to other similar processes.

**CEMENTS**, a term applied to those bodies which are capable by their interposition of uniting homogeneous or heterogeneous substances. This action may result either from chemical combination, or it may be simply mechanical, and due to the adhesiveness of the cement, by which air is excluded from the surfaces to be united.

In the former category may be classed the hydraulic or building cements, used in architecture, and formed from those argillaceous limestones which on calcination are rendered capable of setting under water with rapidity, of acquiring great hardness in a short time, and of being employed without the admixture of any foreign substances. In the latter class the most prominent are the bituminous, oleaginous, and resinous, beside miscellaneous cements, a great number of which are employed in the different branches of the industrial arts. Among the hydraulic cements, the most widely known are the Roman, Portland, Medina, and Mulgrave in England, and the Kingston and Rosendale cements in this country.—Roman cement was first manufactured by Mr. Parker of London, from the septaria nodules of the London clay formation, found in the island of Sheppey; his process, which was patented in 1796, consisted in calcining the stone nearly to the point of vitrification, and then reducing it to powder by crushing; he applied the term Roman to this preparation from its similarity to that formed by the ancient Romans from pozzolana and trass, substances of volcanic origin, and nearly allied to the septaria in their chemical constitution. At a later date it was discovered that the septaria of other localities furnished a cement similar to Parker's. Medina Cement is prepared from nodules found in Hampshire, while Mulgrave or Atkinson's cement is formed from the argillaceous limestones of the lias. Portland cement is so termed from its similarity in color to the Portland stone; it is not properly a cement, but an artificial hydraulic lime composed of a mixture of clay and chalk from the valley of the Medway; the materials are ground together under water, and afterward dried and burnt in proper kilns. Portland cement is noted for its extraordinary hardness and tenacity, but, as it permanently expands in setting, must not be used where such a property would interfere with the solidity of the work; in external plastering it is of great value.—In the United States hydraulic cements are obtained in numerous localities. Cements of good quality are manufactured in Virginia, on the banks of the Potomac at Sheppardstown, and in the vicinity of the Natural Bridge, also in Kentucky near Louisville, and in many other places where the silicious magnesian limestones are found. Those from the state of New York, however, are considered the best, particularly the Kingston and Rosendale cements, manufactured in Ulster co.; these were used in the construction of the Croton aqueduct, and of many other important public works throughout the country. The cement stone of Kingston yielded the following results according to an analysis of Dr. Beck:

	Before calcination.	After calcination.
Carbonic acid.....	34.30	5.00
Lime.....	35.50	37.60
Magnesia.....	13.25	16.65
Silica.....	15.87	23.75
Alumina.....	9.13	12.40
Peroxide of iron.....	2.65	2.30
Loss, &c.....	1.20	1.30

An analysis of the Sheppey stone, from which Parker's cement is obtained, gives:

Carbonate of lime.....	0.690
Magnesia.....	0.003
Oxide of iron.....	0.097
Oxide of manganese.....	0.013
Silica.....	0.130
Alumina.....	0.066
Water.....	0.013

As a general rule it may be stated that a lime-stone must contain from 25 to 35 per cent. of clay (silicate of alumina), in order to yield a good, quick-setting cement, though 10 to 12 per cent. of clay will suffice to give it hydraulic properties. Great difference of opinion has existed in regard to this subject; some have ascribed the hydraulic property to the presence of oxide of iron, and others to the oxide of manganese, to silica, alumina, magnesia, and soda. Berthier and Vicat, however, found that the presence of silica was indispensable, and they assigned no importance whatever to the oxides of iron and manganese. Without entering upon a full consideration of all the substances involved, it will be sufficient to say that certain earthy substances, and especially silica, combine with the lime which is produced by the calcination of the carbonate of lime contained in the cement stones, and that the silicate thus formed, absorbing water, becomes solid.—The general name of Roman cement is often, though erroneously, applied to all the natural hydraulic cements, and the process of preparation is essentially the same. They are burned in kilns, and a lower degree of heat is employed than that recommended by Parker; the cement being under burnt, economy is effected in the process of grinding. In burning, the stone loses about  $\frac{1}{4}$  of its weight, and acquires a brown tinge, differing in shade according to the kind of stone used; it is then soft to the touch, and leaves a very fine dust upon the fingers. The blocks of cement might be preserved for a long while in a dry room, in the same state in which they come from the kiln; such is the difficulty with which they absorb water that Gen. Pasley pronounced them incapable of so doing. For use, however, the cement must be ground, and is then put in casks well closed, since exposure to the air rapidly deteriorates its quality, the powder absorbing water and carbonic acid, and passing into the state of a subcarbonate; its usefulness, however, may be restored by a second burning at a lower degree of heat than in the first instance. M. Petot has observed that when the calcination of cement stones is so extended as to expel all the carbonic acid, the resulting powder is perfectly inert, showing a remarkable difference between this class of limestones and those which produce the common lime. This property should be borne in mind in all experiments made to test limestones for hydraulic cement. Cement should be ground very fine; the French engineers require that the sieve through which it passes shall be of No. 2 of their wire gauze, and contain 185 meshes to the square of a side of 4 inches. The specific gravity of the cement

powder varies from 0.85 to 1; the lightest is the best. No little skill and attention are required in the use of these natural cements; as if they are not brought to a proper consistence, or if the water be used too sparingly or too abundantly, or if allowed to stand after being made, they will solidify unequally, crack, and adhere badly to the materials. But a small quantity of water is necessary to work up cements to their greatest point of resistance. According to Treussart, the best proportions are 1 of water to 3 of cement by volume; and in mixing, the cement should be beaten up frequently, since the more it is stirred before setting commences, the harder it becomes. The time of setting varies considerably, being longer with sea water than with fresh, and being retarded in proportion to the amount of sand employed. When used pure, it will often harden in 5 or 6 minutes, and the time should never exceed half an hour, or when used under water, 1 hour. If  $\frac{1}{2}$  to 2 parts of sand be added to 1 of cement, the mixture will set in from 1 hour 2 minutes to 1 hour 18 minutes in the air, and in a proportionally longer time under water. Under sea water, and especially if the same has been used in mixing the cement, the time may extend to 24 hours. Pure cement, after an exposure of 20 days to the air, offers a resistance to rupture of about 54 lbs. to the square inch; but if it be mixed with half its bulk of sand, the resistance falls to 37 lbs., and with an equal bulk to 27 lbs., showing in this respect a remarkable difference from the limes. The resistance afforded by pure cement against the sliding of stones upon their beds may safely be taken at 9 lbs. per square inch, though it often reaches 18 lbs. The natural cements are employed to the best advantage without sand when used in works under water, or where a great crushing weight is to be brought upon them at once. For cornices, or coatings exposed to the weather, we may combine 2 parts of sand with 3 of cement, and for perpendicular faces 3 parts of sand with 2 of cement, being careful to avoid the formation of fissures, which would expose the coating to the effects of frost and ultimately destroy it. Cement adheres very strongly to iron, still more so to granite, and most of all to brick.—Beside the cements already mentioned, many others may be obtained, either by over-calcination of the hydraulic limes, which induces a more rapid setting and a greater degree of hardness, or by the mixture of burnt clays with the rich limes; the latter do not swell in setting, as is the case with the former, but are inferior in point of hardness; they are, however, often used to advantage when mixed with the slow-setting limes, and employed in damp situations, as in the lining of cesspools and water-tanks; still they are greatly inferior to the natural cements, and their employment can only be advocated on the score of economy. Another class of cements are those whose basis is gypsum or plaster of Paris, instead of an hydraulic lime; in this case the hardening is due

to a union of the cement with water, and not to the formation of a silicate, as in the former cements; as gypsum alone, however, never acquires any great degree of tenacity, it is employed in combination with alum. In Keene's cement, powdered gypsum is mixed with a solution of alum, and then heated till all the water in combination is dissipated; it is then powdered, and when used, slaked by a solution of alum in 12 or 18 parts of water. Martin's cement differs from the above only in adding to the original compound a portion of carbonate of soda, or carbonate of potassa, and in using a greater degree of heat; while in Parian cement borax is substituted for the carbonate of soda or potassa. These are useful in floorings, skirtings, &c., and especially where damp and vermin are to be apprehended; they may be employed like stucco in cementing walls, and their surface afterward embellished by delineations similar to those of fresco painting. Stucco is used for coating walls, ornamenting ceilings, &c., and consists of powdered gypsum, mixed with a solution of glue or gelatine. Scagliola is somewhat similar, and derives its name from the numerous splinters or *scaglioli* of marble used in the work. (See STUCCO.)—Bituminous cements are employed as substitutes for flagging in the paving of streets, and for protecting the extrados of arches from the effects of water, &c. The former application is limited, but for the latter purpose they are of great utility, since in all new masonry there are movements which fissure the coatings executed in lime or hydraulic cements, to say nothing of the crevices produced by the unequal contractions and shrinkages of the cements, so that it is almost impossible to render such coatings impermeable; these defects are admirably remedied by the elasticity of the bituminous cements; small crevices often unite of themselves, and large repairs, when necessary, are easily executed. These cements are obtained from the natural asphaltum; mixed with chalk or other form of carbonate of lime, it is best adapted to works which are exposed to the effects of the sun; alone, it would melt in such situations, but for subterranean works is considered preferable. (See ASPHALTUM.) The cement is spread with trowels, and as far as possible formed into slabs of about 8 feet in width; it should be evenly spread and compressed, and fine sand then sprinkled on the surface, and worked in with the trowel, taking care to fill any crevices that may be formed by air bubbles with cement, and not with sand. For coating arches, a thickness of  $\frac{3}{4}$  to  $\frac{1}{2}$  an inch is sufficient, giving a quantity of about 4½ lbs. to the square yard; it is also advisable to lay the cement upon a bed of concrete or mortar; in street paving this precaution is indispensable, and the thickness of coating must be fully  $\frac{3}{4}$  of an inch; it is also well to add a little quicklime to the boiling asphaltum, to prevent the cement becoming too soft under the heat of the sun's rays. The surface upon

which the cement is employed must always be dry, and it should be used as hot as possible. Should the asphaltum be found too brittle, a quantity of mineral pitch or petroleum may be added to correct this defect, but coal tar or vegetable pitch must on no account be used. These latter, though greatly inferior to the natural bitumens, may in some cases serve as tolerable substitutes for them; though deficient in elasticity and durability, they yet make good coatings for vaults, &c. For pavements, however, they are not at all adapted. They are prepared by mixing powdered calcareous stone with the boiling pitch or tar, the relative proportions being obtained in each case by direct experiment; the stone must be well dried, for if wet, the vapor generated by it would render the cement porous; and care must also be taken lest the stone be converted into quicklime, as this takes place with comparative facility, owing to its comminuted state. They are to be used in the same way with the other cements, except that it is desirable to employ greater thicknesses.—The oleaginous cements were formerly much used, under the name of mastic, for the purpose of ornamental decorations; they furnish a smooth, close-grained surface, but require repainting every 8 or 4 years. The expense and difficulty of manipulation have caused them to be seldom employed at the present day. The most widely known mastics are those of Hamelin in England, and the mastic *de Dhl* in France; their exact composition is kept secret, but the main ingredients are pounded brick-dust or well-burnt clay, litharge, the red protoxide of lead, and linseed oil.—The cements used on the continent of Europe for mosaic work are of 8 kinds. The first is bituminous, being composed of pitch mixed with a black earth, and is used in setting the large *tessere* in floors; the second is oleaginous, employed for setting stones of middling dimensions, and made of the calcareous stone of Tivoli, and of oil; while the third, for the more delicate mosaics of pieces of glass, is composed of lime, brick-dust, gum andragan, and the whites of eggs.—Among the interminable list of miscellaneous cements, we find a very useful one for joining broken pieces of glass or china-ware; it is termed diamond cement, and is prepared by steeping isinglass in water till it swells, and then dissolving it in proof spirit, to which is added a little gum resin, gum ammoniacum, or resin mastic, dissolved in the smallest possible quantity of alcohol; it partially resists moisture, and should be gently heated before applied. Haale's cement for the same purpose consists of 2 parts of shell-lac dissolved in 1 part of oil of turpentine, and cast into sticks. Keller's cement is prepared according to the following formula: Steep 2 parts of finely-chopped fish glue for 24 hours in 16 parts of water, then boil till the liquor is reduced to 8; add 8 parts of alcohol, and strain the whole through linen; while still warm, mix with a solution of 1 part of mastic in 9 of alcohol, and  $\frac{1}{2}$  a part of gum

ammoniacum in fine powder; add the latter gradually, and mix intimately by maceration. This cement is used by heating the parts to which it is to be applied, allowing them to cool, and then covering with the hot fluid, and pressing the parts together. The cement becomes perfectly hard in 5 or 6 days. It is not very well adapted for very porous articles, for which it would be better to use a concentrated solution of shell-lac in spirits of wine, applied to the parts to be connected, after the surfaces of the latter have been thoroughly dried. Shell-lac also forms a good cement when dissolved in a concentrated solution of borax. Pieces of spar and marble ornaments may be united by the white of eggs mixed with quicklime; this makes a strong cement, though it will not resist water effectually. By substituting blood for the white of eggs, a cement is formed for securing the edges and rivets of boilers, and used by copper-smiths for that purpose. A very strong cement for stoneware is made by boiling the cheese of skimmed milk in a large quantity of water, and incorporating the solution with quicklime in a mortar. The French plumbers unite the glazed pottery tubes employed by them for the distribution of water either with a cold cement, composed of quicklime, cheese, milk, and the white of eggs, or with a hot cement of rosin, wax, and lime. Varley's cement is formed by melting 16 parts of rosin and 1 of beeswax with 16 of whiting previously well dried by having been heated to redness, and stirring the whole well during the fusion. Singer's cement, for connecting articles of brass and glass, is composed of 5 lbs. of rosin, 1 of beeswax, 1 of red ochre, and 2 tablespoonfuls of plaster of Paris, all melted together. According to Ure, a cheaper compound, and one well adapted for cementing voltaic plates into wooden troughs, is made of 6 lbs. of rosin, 1 of red ochre,  $\frac{1}{2}$  lb. of plaster of Paris, and  $\frac{1}{4}$  lb. of linseed oil, the ochre and plaster to be calcined beforehand, and added to the other ingredients while in fusion. White wax, rosin, and Canada balsam form a cement nearly colorless. Cameos of white enamel or colored glass may be joined to a real stone, to give the appearance of an onyx, by the use of resin mastic, and in the same manner false backs or doublets may be connected to stones so as to alter their hue. In these the cements must be softened by heat before being applied. Iron pipes are often cemented by a paste of iron filings and chloride of ammonium, moistened with water; the oxidation of the iron expands and solidifies this cement; Ure advises the proportion of 99 parts of filings to 1 of the sal ammoniac. A similar preparation is composed of 4 parts of iron filings, 2 of potter's clay, and 1 of pounded potsherds, the whole being made into a paste with a concentrated solution of common salt; on drying, this becomes extremely hard. In connection with the general subject of cements, see **LIME**, **MORTAR**, and **GLUE**.

**CEMETERY** (Gr. *κοιμητήριον*, a sleeping place; mod. Heb. *Beith-haim*, the house of the living; Ger. *Gottesacker*, God's field, *Kirchhof*, churchyard, and *Friedhof*, the court of peace), a place appointed for the sepulture of the dead. The affection of the living for departed friends appears in all the methods of disposing of corpses which have been practised by different nations. Whether the body is reduced to dust by fire or decay, the commemorative urn or tomb is esteemed sacred, and is guarded with pious care. Cemeteries, consecrated by the laws and by religion, have existed from the remotest ages. The Hebrews had public burial grounds, and their first care after arriving in a new country was to select a plot for sepultures. Every city had its public cemetery outside of its walls, that of Jerusalem being in the valley of Oedron. The Greeks, before they adopted the Phrygian custom of burning their dead, had their sleeping-field; and at Rome, even after incineration became usual, the Appian way was lined for miles with sepulchres and urns. In Babylonia and Egypt there were immense burial places, which are still attested by the ruins and mummies that have recently been discovered there. Although it had been a law of the 12 tables that the dead should neither be buried nor burned within the walls of a city, yet the Christians early introduced the custom, first of building their churches on plots which covered the remains of martyrs, and then of leaving a space around the church to be reserved for burials. Often the tombs invaded the church itself, which was undermined by crypts like a city by catacombs. In the earlier middle ages the cemetery was the churchyard, and relics of this usage are still seen in the graves which surround old churches in cities, and in the common juxtaposition of the church and burial ground in small villages. But with the increase of population it became necessary to establish large public cemeteries without the city walls, and this practice has become general in modern times. The most celebrated of the European public cemeteries are those of Pisa and Naples, and the *Père la Chaise* of Paris. That of Pisa, called the *Campo Santo*, is a beautiful oblong court, 490 feet long and 170 feet wide, surrounded by arcades of white marble 60 feet high, and adorned with ancient Etruscan, Greek, and Roman base-reliefs, and other sculptures, and with paintings by the earliest Italian masters. In its centre is an enormous mound of earth, said to have been brought from Palestine during the crusades, and formerly used as a burial ground. This cemetery is the pantheon of the Pisans, and among its most famous monuments is the tomb of Algarotti, raised by Frederic the Great in 1764. The most remarkable of the cemeteries of Naples lies alongside of the most splendid road leading from the city. It consists of 865 deep cells dug into the pozzolana clay of which the hill is composed. One of these cells is opened every morning to receive together all the dead bodies brought during the day. The *Père la Chaise*,

the vastest necropolis of Paris, is situated N. E. from the city, and extends from the boundary of Aunay almost to that of Amandiers. It was transformed into a cemetery by Napoleon I., and contains the tombs of Abelard and Heloise, La Fontaine, Molière, Beaumarchais, Delille, Talma, Bellini, Weber, Laplace, Cuvier, Arago, Benjamin Constant, Börne, Royer-Collard, Marshal Ney, the painter David, Sieyès, Barras, Frédéric Soulié, Balzac, and others of the most distinguished men of France. Its highest elevation commands the city on one side and the surrounding country on the other, and its hills and valleys are covered with every variety of column, obelisk, pyramid, funeral vase, and sculptured flowers and garlands. The cemeteries of Russia are usually distant from cities and villages, and planted with tall pines. Among the most noted and beautiful cemeteries in the United States are Mount Auburn, near Boston, Mass. (see CAMBRIDGE), Greenwood, in Brooklyn, and Laurel Hill, near Philadelphia.

**CENOL, BEATRICE**, a Roman maiden of the 16th century, noted for her tragic fate. Her father, Count Nicolo Cenci, was a man notorious for his bad character and fiendish passions, which would have brought him to the block, if his immense fortune had not enabled him to escape on several occasions from the hands of justice. In the latter part of his life he retired with his second wife Lucrezia, with Beatrice and her youngest brother Bernardo, to the castle of Petrella, situated in a desolate spot on the Sabine hills, near the Neapolitan frontier; and here in "that savage rock, the castle of Petrella," where "at noonday 'tis twilight, and at sunset blackest night," the monster, after having caused the death of 2 of his sons, perpetrated a diabolical outrage upon the person of his own daughter. Beatrice brought her case before Pope Clement VIII., but as her appeal for justice remained unheeded, the assassination of her unnatural parent was determined upon by her stepmother, her brother, and her lover. According to other and more trustworthy authorities, Beatrice and her relatives had no part in the assassination, which is said to have been perpetrated by some of the many enemies of the old man, who was execrated all over the country. But, however this may have been, Beatrice was accused of parricide, and after having been subjected to the most excruciating tortures, was executed by the *mannai*, Sept. 11, 1599. Her stepmother Lucrezia and her elder brother Giacomo were also sentenced to death. Her younger brother Bernardo's life was spared on account of his extreme youth. When the executioner bound her hands Beatrice said: "You bind my body for destruction, but my soul for immortality." During the torture she is said to have replied to each interrogation of the judge, "It is true," adding: "O God, thou knowest if this be true." Beyond this there was not a particle of evidence against her. The death of Beatrice sent a thrill of horror through Rome. Many of

the most illustrious families had in vain sought the pope to spare her life. Pope Paul V. confiscated the Cenci estates, including the villa, which, under the name of Villa Borghese, has since acquired a world-wide celebrity. More than one life was lost in attempts to rescue Beatrice. Her remains were interred at Montorin in the church of San Pietro. Guido's celebrated portrait, in the Palazzo Colonna at Rome, is said to have been taken immediately before her execution. In Whiteside's "Italy," the true story of Beatrice Cenci is related after the original MSS., which for a long time were preserved with the greatest secrecy, on account of the connection of the Cenci with many of the most influential families of Rome. Muratori's "Annals" constitute another authority, which is frequently referred to on the subject of Beatrice. The French author De Oustine dramatized the story, but the greatest work on the subject is Shelley's, who represents Beatrice as implicated in the murder of her father. Mr. Whiteside, however, has fully established the fact that the beautiful girl was sinned against, but no sinner. An English translation of Guerrazzi's novel of "Beatrice Cenci," by Mrs. Watts Sherman, appeared at New York in 1858, simultaneously with one by Signor Monti, of Harvard university, Cambridge.

**CENEDA** (anc. *Conitenae Castrum*), a Venetian town of the province of Treviso, on the rivers Meschio and Piave; pop. 5,200. It is the see of a bishopric, and possesses a cathedral, several churches, manufactories of leather, woollens, and paper, and several mineral springs.

**CENIS, MOUNT**, a remarkable mountain at the junction of the Graian with the Cottian Alps. It is an elevated plateau 6,778 feet above the sea-level, with a peak rising to the height of 11,454 feet. On the plateau is a fine lake (La Ramasse), noted for an abundant supply of trout. The mountain lies between the province of Susa in Piedmont and that of Maurienne in Savoy. Over it is one of the most noted Alpine passes. It first appears in history in the times of Pepin. It was over the pass of Cenis that Pepin led the French army (755) against Astolphus, king of the Lombards, in aid of Pope Stephen III., in which service, by the promise of the distressed pope, Pepin earned an inheritance of spiritual rewards for himself and all the French nation. Nearly 1,000 years later Catinat, marshal of France, led his army over this pass, in the wars of Louis XIV. Catinat improved the Cenis pass somewhat, though it was still of difficult transit, and only for mules. In order to facilitate the intercourse across the Alps, Napoleon ordered a road to be laid out and constructed 18 feet wide for a distance of 80 m., so that the pass of Cenis is now less difficult and dangerous. Napoleon's road leads from Lans-le-Bourg to Susa. It was constructed at a cost of more than 7,000,000 francs. There is a toll levied on passengers, to defray the expenses of the



pass. There is little vegetation on the plateau, less on account of the rigor of the climate, than the force of the winds which blow here constantly. The wind from the Piedmont side is called the *Lombarde*, that from the Savoy side the *Vannoise*. It is colder at the Lans-le-Bourg terminus of the road than on the plateau, for during 8 months of the year Lans-le-Bourg does not see the sun, on account of a high peak at the foot of which it is situated.

**CENOBITE** (Gr. *κοινος*, common, *βιος*, life), a person who lives in community with others, under a common rule. The hermits of the first ages, who dwelt in the deserts together, were usually called by this name, the place in which they lived being called a *canobium*. Some writers refer the institution of these to the times of the apostles, others to St. Pacomius, who lived in the early part of the 4th century.

**CENOTAPH** (Gr. *κενος ταφος*, an empty tomb), a funeral monument raised by the ancients in honor of a person who had not received burial. Its origin was due to the belief that the souls of those deprived of sepulture must wander for a hundred years on the banks of the Styx, outside of the Elysian fields. The most celebrated antique cenotaphs that remain are at Pisa.

**CENSER**, a vessel for burning and wafting incense, used in the celebration of religious rites by the ancient Hebrews, Greeks, and Romans, and still retained in the Catholic church. The Jewish censer appears to have been a sort of chafing-dish, with or without handles, which the high priest carried into the sanctuary or placed on the altar of incense. That used in the Catholic church is a vessel shaped much like a goblet, with a perforated lid, swung by long chains, and carried by an acolyte. Josephus tells us that Solomon made 20,000 golden censers for the temple of Jerusalem.

**CENSOR** (Lat. *censere*, to estimate), the title of Roman magistrates of high dignity and great influence, instituted in the year 443 B. C. The office was vested in 2 persons, originally elected for 5 years, from and by the patrician order; but later changes introduced by the dictator Mamercus, 438 B. C., and afterward, reduced the term of the office to 18 months, without changing the period of election, and made it attainable by plebeians, of whom Rutilius, who had also been the first dictator of that order, was the first elevated to this dignity (350); and in 182, even both censors were plebeians. They had all the ensigns of consular dignity, except the lictors, and wore a robe of scarlet. Their office was to take the regular census and keep the rolls of all Roman citizens, to distribute them according to orders, tribes, &c., to value, register, and tax their property, to control public morals and manners, to fill remarkable vacancies in the senate, to choose the *princeps senatus*, to manage the farming of the revenues, customs, and salt monopoly, to contract for repairs of public buildings and roads in Rome and

Italy, &c. They had the right of punishing moral and political transgressions committed by citizens of distinction, with marks of ignominy, by expulsion from the senate, and even by degradation from a higher to a lower order; for which punishments, the ill-treating of members of their families, extravagance, and the pursuit of mean professions, were regarded as sufficient reasons; but their decisions were subject to an appeal to the assembly of the people, and themselves to its jurisdiction. The dignity of censor was regarded as most honorable, and originally only those were eligible who had passed through all other offices. The emperors assumed it under the title of *morum præfectori*; Decius desired to restore it independently under a particular officer. The brother of Constantine the Great was the last censor.

**CENSORINUS**, a Latin grammarian and chronologist, flourished near the middle of the 3d century. He wrote a treatise upon accents, cited by Cassiodorus, which has not come down to us. Only a fragment of his work *De Metris* is extant. He is known principally by a curious and learned work entitled *De Die Natali*, addressed to his friend Q. Cerebellus, on the occasion of his birthday. In this small book he treats of the generation of man, of his natal hour, of the influence which the genii and stars exercise over his destiny, and of the climacteric periods of his life. He then discusses music, religious rites, and matters relating to astronomy, chronology, and cosmography. This work has been of considerable value in establishing ancient chronology. By it the commencement of the era of Nabonassar and other important dates have been fixed, and Censorinus has therefore been named by Scaliger *ænimus et ætissimus temporum vindeæ*. The first edition of his work was that of Bologna, in 1497; the last is a German edition, by Græber, in 1806.

**CENSORSHIP OF THE PRESS**, a regulation by which books, pamphlets, and newspapers are subjected to the examination of certain civil or ecclesiastical officers, who are empowered to authorize or forbid their publication. Such a regulation was suggested by Plato, and an informal censorship existed in the times of Greece and Rome. Thus all the copies of the works of Protagoras were burned at Athens by sentence of the areopagus, because he had expressed doubts concerning the existence of the gods. Satirical works and writings on magic were often condemned to the flames by the Roman emperors, and Diocletian ordered the sacred books of the Christians to be burned. After the church acquired a share in the civil power, it induced the state to condemn heretical books, and the writings of Arius were burned by edict of Constantine. Subsequently there were numerous enactments by popes and councils against the works of heretics, sanctioning the principle that books objected to by the church should be suppressed. This principle was maintained throughout the middle ages, authors often as a voluntary act of respect sub-

mitting their works before publication to the judgment of the higher clergy. The first eminent instance of this kind was that of Autpert, a Benedictine monk, who in 768 sent his "Exposition of the Apocalypse" to Pope Stephen III, begging him to publish the work and make it known. The invention of printing and the increasing number of books called forth new and stricter prescriptions of censorship, and there still remain copies of books printed in 1479 and 1480 which are accompanied with solemn approbations and attestations in their favor. In 1486 Berthold, archbishop of Mentz, issued a mandate forbidding the publication of any work in the German language unless it should be first read and approved by one of 4 censors whom he appointed. In 1501 Pope Alexander VI. addressed a bull to the archbishops of Cologne, Mentz, Treves, and Magdeburg, according to which no book should be printed without special express license from the clergy. Finally, in 1515, the council of the Lateran, assembled at Rome, decreed that in future no books should be printed in any town or diocese unless they were previously inspected and carefully examined by the bishop of the diocese or his deputy, or by the inquisitor of the diocese or his deputy, or if at Rome by the pope's vicar and the master of the sacred palace. Every work which was approved was to be countersigned by the hand of the censor, and any publication not thus countersigned was to be burned and its author or editor excommunicated. Thus was a general censorship of the press consummated by the Roman Catholic church, which has since been enforced by that church in countries where it has had the power. Its "Index of Prohibited Books" was begun by the council of Trent in 1546, and has been from time to time republished and enlarged. It has also an "Index of Expurgated Books."—In countries where the reformation prevailed, the censorship was not abolished. Licensers of books were appointed in England, who were for the most part bishops; and in the reign of Charles I. complaints were laid before the house of commons against Archbishop Laud and his associates, because, as was alleged, it was impossible to obtain from them permission to publish a book written against popery. A general system of censorship was established by a decree of the star chamber, dated July 11, 1637, which remained in force during the civil war, and was confirmed by an act of parliament in 1643. It was against this act that Milton wrote his "Areopagitica: a Speech for the Liberty of Unlicensed Printing." "Paradise Lost" itself was in danger of being suppressed because the simile of Satan compared with the rising sun, in the first book, was supposed to contain a political allusion. Parliament took several measures against "scandalous, seditious, libelous, and unlicensed pamphlets." In 1653 the council at Whitehall ordered that no person should print any matter of public news or intelligence without leave of the secretary

of state. The licensing system, and with it the censorship of the press, was abolished in England in 1694 in the reign of William and Mary, but the question of its revival was agitated in parliament some time later.—A general censorship of the press existed under the old French monarchy. Originally in the hands of the bishops, it passed by degrees to the doctors of the faculty of theology; but this faculty becoming divided into parties on matters of controversy, the chancellor of the kingdom took the censorship from it in 1658. He appointed 4 royal censors with an annual stipend to examine all works without distinction, and no writing could be printed or sold, and no dramatic piece performed, unless approved by one of them. At the outbreak of the revolution the censorship was abolished and entire liberty of the press proclaimed, but in the reign of violence which followed there was no safety for obnoxious journals or writers. Napoleon during the consulate limited the freedom of the press to works of a certain size, but subjected newspapers and pamphlets to a strict inspection. By a decree of the council of state in 1810, a complicated system of censorship was revived in France. Even after a book had been examined, approved, and printed, it could be seized by the minister of police and its sale stopped, a memorable instance of which was the destruction of the whole first edition of Madame de Staël's *De l'Allemagne*. After various modifications of the censorship, Charles X., upon coming to the throne, abolished it altogether, but soon after suspended the liberty of the periodical press. By a law of 1835 the proprietors of political journals are obliged to deposit a considerable sum in the treasury as security for their good behavior. Under the empire of Louis Napoleon the Parisian newspapers are subjected to strict supervision, and if not satisfactorily conducted may be suppressed.—A general censorship of the press is maintained in the absolute monarchy of Russia. In some of the Italian states an ecclesiastical and a political censorship exist together. By the Spanish constitution of 1837 the previous censorship was abolished, and all Spaniards may print their thoughts freely, subject only to the laws. The determination of offences committed by means of the press belongs to juries empanelled for that purpose. In the republics of Switzerland, since 1830, no censorship has existed, but the liberty of the newspaper press is very much restricted by laws. By the constitution of the kingdom of Greece of 1827, the Hellenes have the right of publishing freely their thoughts, abstaining however from violations of decency, from personal calumny, and from attacking the principles of the Christian religion. In Sweden, Norway, the Netherlands, Belgium, and Denmark, no authoritative censorship exists, but upon those who offend through the press penalties of various degrees of severity are imposed. These penalties are most rigorous in Denmark. The liberty of the

German press has been even more unsettled than the political government of Germany. While the emperors of the house of Austria had vainly sought to establish uniform rules to check the press in all the states, Frederic the Great granted uniform liberty to the press in his dominions, "because it amused him." During the ascendancy of the French republic the press was arbitrarily checked in most of the states, though it was free in Bavaria, Holstein, and occasionally in Hesse and Mecklenburg. The censorship was subsequently abolished in some of the smaller states, as Nassau, Würtemberg, and Saxe-Weimar; but a congress of the German rulers, assembled at Carlsbad in 1819, extended it over all printed publications under 20 sheets. Permission also had to be obtained for selling foreign books. The French revolution of 1830 prompted the German people to demand complete freedom from the censorship, except in cases specified by the diet, but though liberal regulations were obtained, they were upheld only a short time, and there was a gradual reaction toward the decree of Carlsbad. In the political systems of Germany, the censorship was formerly one of the functions of police, but is now in Prussia and Austria intrusted to a commission. In the United States of America there never has been a censorship of the press. There are laws against publications of a scandalously immoral character, but in general the only restraint upon printing or circulating any class of books is found in the public sentiment.

CENSUS, a registration of persons and their property, which in some states constitutes their claim to citizenship, or to dignities attainable only by members of certain classes. That the ancient Hebrews and their families were numbered by age and sex, we have positive proof in the sacred writings, the enumeration of the people having been enjoined on more than one occasion. The most ancient statistical record extant, derived from an enumeration of the people, is that of Moses in the wilderness.—According to the constitution of Solon, the citizens of Athens were divided and registered into 4 classes (*τεμνηματα, τελη*), according to the amount of their taxable property, that is to say, of their income. The 1st consisted of the *Pentacosiomedimni*, or persons having a revenue of 500 medimni of grain, or as many measures of oil; the 2d and 3d classes, *Hippeis*, or knights, and *Zeugitai*, comprised the citizens next in wealth; and the 4th, that of the *Thetes*, included all whose income fell short of 200 medimni. Only those belonging to the 3 wealthier classes could be elected to public office, while those of the 4th, which was more numerous than all the other three, enjoyed the privilege of suffrage in the public assemblies, where their majority decided in the most important affairs. The medimnus being valued at a drachma, and the income representing, probably, the 12th part of the value of the estate, the *Pentacosiomedimni* can be estimated as owners of a talent, or 6,000 drachmæ.

While the whole revenue of citizens of the 1st class was regarded as taxable, those of the 2d enjoyed the advantage of having only  $\frac{1}{2}$  of theirs taxed, and those of the 3d only  $\frac{1}{3}$ . This was one of the democratic features of Solon's constitution. The valuations were given by the citizens, being subject to a counter valuation. The registers were prepared and kept by censors, called *Nauorari*, in after times by the demarchæ. It is certain that valuations of taxable property were common in Greece before the Peloponnesian war; the remark, therefore, of Thucydides, in the history of the year 428 B. C., that the Athenians then first raised a property tax of 200 talents, must have been made in reference to the amount of the tax. New valuations, and new classes for property taxes, were introduced in the year 378 B. C., whose nature, however, owing to the scarcity of details, can now hardly be determined. A similar classification for the supply of the navy, the *trierarchy*, was subsequently instituted. The influence exercised by the wealthier classes, according to the privileges founded on the census, is spoken of as *timocracy*, or aristocracy of wealth.—The Roman census originated in the distribution of citizens into classes, effected by Servius Tullius, the 6th king of Rome, in a most solemn manner on the Campus Martius, where every citizen had to appear, and to declare upon oath his name and dwelling, the number and age of his children, if he had any, and the value of his property, under the penalty of having his goods confiscated, and of being scourged and sold for a slave. The whole people was divided into 6 classes, each comprising a number of centuries. The 1st class consisted of the richest citizens, worth at least 100 minæ, the 2d of those worth 75, the 3d of those worth 50, the 4th of those worth 25, and the 5th of those worth 13, while the 6th comprehended all the poor citizens, who were exempted from all taxes and public burdens, and were termed *Capite censi* or *Proletarii*. As each century had to furnish and to maintain 100 soldiers in time of war, whence its name, not from the number of its members, and as the numbers of centuries in the classes were 98 in the 1st, 22 in the 2d, 20 in the 3d, 22 in the 4th, and 30 in the 5th, while the 6th, forming but one, was altogether exempt, it is evident that the burdens of the state weighed particularly upon the richest, who were, therefore, compensated by a proportionate influence in the *Comitia Centuriata*, in which the chief magistrates were elected, laws framed, and peace and war decided upon. The vote being taken by centuries, the 98 of the 1st class alone, which were called first, could decide every question in case of unanimity, before the call of the others. In comparison with those of Athens, the poorer classes of Rome had, beside the disadvantage of having the whole amount of their property taxed like the richest, some sorts of goods being also estimated, exceptionally, at many times their value. Servius Tullius concluded his census, which, though his insti-

tions were modified and overthrown, and but gradually restored, may be regarded as an important basis in the great structure of the Roman power, with an expiatory sacrifice of a bull, a ram, and a hog, which were first led 3 times around the Campus Martius. This ceremony, continued in the similar *Suovetaurilia*, was regarded as a purification of the city, or *lustrum*, which gave the name to the quinquennial period elapsing between one census and another. Subsequently the kings, the consuls, and then the censors presided over the taking of the census, imitating the ceremonies observed by Servius Tullius.—It is mentioned in the "Royal Commentaries" of Peru, by Garcilasso de la Vega (b. vi. ch. 8), that the records of the census by that ingenious people were preserved and illustrated by a fringe work of strings of various sizes, number of strands and colors, knotted "like the girdle of St. Thomas," by which they could express "the greatest number at which arithmetic could arrive;" and in this manner they described the several castes of population, and their enumeration by age and sex, with a classification, first, those of the age of 70 and upward, then those of 50, "then those by 10 to 10 down to sucking children." In this way they preserved the record of their married and widowed men and women by age and sex, and in like manner they are represented as taking annually and preserving an account of the warriors of different orders and the agricultural productions and wealth of the people. According to Herrera, the Mexicans were but little if at all behind the Peruvians in their means of understanding the condition of the people by means of the census.—There exists no official record of the population of England previous to the commencement of the present century. The first census of Great Britain was taken in 1801, and the first enumeration of the population of Ireland was made in 1818; but so imperfectly was the work accomplished that statisticians place but little confidence in the correctness of the returns, and the first census upon which they place any great reliance is that of 1821. The census of Great Britain and Ireland is taken every 10 years, and includes the general statistics of population. Attempts have been frequently made to induce the British parliament to enact the necessary law for obtaining the general statistics of the kingdom, but they have been frustrated in the belief that such investigations would be distasteful to the people. England also gives particular attention to the register of births, marriages, and deaths, and has established a bureau of statistics, which publishes annual reports of great value on the movements of the population.—It is claimed by French writers, that a census was taken during the reign of Charles IX. in the 16th century, but no traces of this work are to be found in the French archives, although they profess to give the results. The first census of which the records are extant was taken in 1700, the results

of which were published in 1720. The population of France, by what they claim as their first census, was set down at 20,000,000, whereas by that of 1700, when their territorial extent was much increased, it fell short of that by  $\frac{1}{4}$  a million. The census of 1720 was designed to be very thorough for that early period, and revealed pretty clearly the judicial, military, and ecclesiastical condition of the kingdom, and developed many important facts respecting agriculture, manufactures, and commerce, and the physical features of the country. The next census of France was made in 1762, under Louis XV. The minister Necker and the statistician Mohean both throw doubts upon the accuracy of its statements. A general census was taken in 1800, another in 1805. A royal ordinance in 1822 provided for a general census every 5 years; but in place of an actual enumeration which should have been made in 1826, the number of inhabitants was declared by simply adding to the population of 1822 the excess of births over deaths for the intermediate time, and the result was by royal ordinance declared authentic; a convenient method of avoiding, when it seemed politic, unpalatable revelations. From the time of this intermission the census has been taken with regularity and care. In France the parish or commune sends its report to the chief place of the canton, the canton to the head of its department, who forwards it to the minister of the interior, where are collected the reports of the 86 principal divisions, the 363 districts, the 2,847 cantons, and finally the 36,819 communes, villages, &c. The population is returned by ages, sexes, professions or trades.—In Prussia, statistical investigations have been pursued by the government since the days of Frederick the Great, and the statistical bureau was established in 1816, which has the control of the census, which occurs every 8 years, when the population is registered by age and sex, with the principal domestic animals, schools, and industrial establishments subject to taxation. In this work the principal states of Germany have recently united, and under the charge of Dietrich, the distinguished chief of the statistical bureau at Berlin, there have been prepared and published the statistics of the 39 allied states.—In Sweden, the science of statistics has been more particularly cultivated than in any other country, and the frequent enumeration of the inhabitants has been pursued for near a century with great care. In Sweden originated the earliest mortality tables which are used at the present day.—In Russia, the census was organized in 1723 by Peter the Great, who established during the previous year the general registration of births, marriages, and deaths. It was at that time ordained that the census should be renewed every 20 years. From the early institution of these investigations, and the particular manner with which they have been conducted, we are possessed of a knowledge of the movements of the Russian population for more than a century. The magnitude

of the labor of executing this work may be imagined from the fact that the last census returned a population of more than 50,000,000.—In Austria, the census was first taken near a century since, but not frequently repeated until after the year 1804, while at present an enumeration of the population by sexes and ages is made every 8d year; but the statistics of agriculture and manufactures have been almost wholly neglected.—The first general census of Belgium since she became an independent state was taken in 1846. It was unusually complete, embracing population, agriculture, and industry. The few previous censuses were limited to population. By a royal decree of March 16, 1841, a central commission was charged with the direction of this important duty. Special commissions subordinate to the central body were in 1848 established at the capitals of the 9 provinces. The central commission, in conjunction with the bureau of statistics, directed, revised, and compiled the results. A blank schedule was left with every family, to be withdrawn when filled up according to the printed instructions left with it. The population was enumerated by name, age, sex, nativity, language, religion, occupation, education, houses insured, and the number of houses with pleasure gardens. The statistical commission of Belgium had for its president the distinguished Quetelet, and was composed of 15 persons eminent for their knowledge in the several specialties to which their attention was severally directed. As might be inferred, the result of their efforts has been the most perfect work on the population and resources of a government ever published in Europe.—The census of the United States presents the unusual fact of being instituted with the constitution of the government, the 1st article of which prescribes a general enumeration of the people within 8 years after the 1st meeting of congress, and within every subsequent term of 10 years thereafter. The agents employed to ascertain and report the elementary facts are the marshals of the several states and territories, who are the only officers connected with police affairs known to the general government. The first census of the United States recorded the names of heads of families, enumerated the free white males of 16 years and upward, the same under 16, gave the number of females, and the number of slaves. The 2d and 8d census distinguished the sexes and colors of free persons, classifying the free males under 10 years of age, those from 10 to 16, 16 to 26, 26 to 45, 45 and upward; the slaves were simply taken by number. By the act of May 1, 1810, the marshals were directed to make return of the several manufacturing establishments and manufactures within their several districts. A like division was made of population by the 4th census, which distinguished the number of persons engaged in agriculture, commerce, and manufactures respectively. By this census an account of manufactures was returned, and a digest thereof was published in 1828. The

enumeration of the 5th census distinguished the sexes of all free white persons, and the ages of white males and females, by periods of 5 years up to the age of 20, thence by periods of 10 years to the age of 100 and upward; specifying the deaf and dumb and blind under the age of 14, those between 14 and 35, and those over that age; the free colored persons and slaves were classified by sex, and the ages under 10, and from 10 to 24, 24 to 36, 36 to 55, 55 to 100, and 100 and upward, distinguishing the colored deaf and dumb and blind without regard to age. The 6th census, taken in 1840, distinguished the whites by sex and by age, as follows: 1, all under 5 years, thence to 10, thence to 15 and 20, thence by tens to 100 and upward, specifying the deaf and dumb, blind, insane, and idiotic; the free colored population and slaves by sexes and ages, first under 10, thence to 24, 24, 36, 55, 100, and those above 100; also the deaf and dumb, blind, insane, and idiotic, without respect to age. By this enumeration the marshals were required to take a census of persons receiving pensions from the United States, with the name and age, and to make returns of mines, agriculture, commerce, manufactures, and schools. For the 7th census, which was taken in 1850, unusual preparations were made. By law a census board was provided, to be composed of the secretary of state, attorney-general, and postmaster-general, whose duty it was to make all preliminary arrangements, and provide the necessary schedules, paper, and blanks, which of consequence involved the plan of the census. This board was organized in June, 1849, and its plan was not only approved by congress for that census, but by law made applicable to those to be taken thereafter. By the adoption of an amendment proposed by Mr. Vinton of Ohio, the ratio of representation was established in advance and formed part of the law. The census, which had heretofore been under the direction of the secretary of state, was transferred to the department of the interior, and Mr. J. C. G. Kennedy, who had acted as secretary of the census board, was appointed to its direction. It is believed that the 7th census of the United States is the most thorough ever made in any country. The schedules, to the preparation of which much attention was bestowed, were arranged on a plan of great simplicity and comprehensiveness; numbering the houses, specifying the families, recording the name, sex, age, color, birthplace, profession, or occupation of every free inhabitant, distinguishing the married and widowed; those attending school, and those unable to read and write; the deaf and dumb, blind, insane, idiotic, paupers, and criminals. The slave population were enumerated by age, sex, color, and the number voluntarily manumitted; the number of fugitives, the deaf and dumb, blind, insane, and idiotic, by age and sex. Statistics of mortality were included, which recorded the name, age, sex, color, civil condition, birthplace, occupation, and cause of death of each

person who died within the year previous to the day of enumeration. The statistics of agriculture embrace the number of acres of land improved and uncultivated, its value, with that of the implements and machinery, the number, variety, and value of the live stock, with a full account of all the productions of the field; the value of estate, real and personal; the taxes, number of colleges, academies, and schools, with the number of teachers and pupils, and the revenues; also the statistics of churches, public libraries, and newspapers; those of mines, manufactures, and fisheries were included, so as to give the capital invested, the quantity, kind, and value of raw materials used; the motive power, number of hands of each sex employed, with their wages, and the various products, in quantity, kind, and value. A digest of these statistics is now being compiled under a recent law of congress. The other details have for the most part been published.—From what has been written on this subject, it will be perceived that the census of each country differs essentially in details and in the times when taken, so that it is almost impracticable to institute comparisons between different nations as to the increase of population and the progress of the industrial arts. To remedy, if possible, these differences, and examine into the plans of the European censuses, Mr. Kennedy was sent to Europe in 1851, and after a conference with many of the most eminent statisticians abroad, all of whom readily admitted the importance of a more harmonious action in national investigations of so much interest, it was resolved to hold a congress of statisticians of all nations at Brussels. Three conventions of this nature have already been held at Brussels, Paris, and Vienna, and it is hoped that something important may result from the deliberations of such conferences.—Independent of the federal census, a majority of the states, either in their constitutions or by act of legislature, have made provision for an enumeration of their population respectively. That of Massachusetts is taken in the same years with that of the United States, and as much oftener as the legislature may direct. It is very general and thorough in its investigations. That of New York, embracing population, agriculture, and manufactures, is made decennially at intermediate periods, affording an enumeration each 5 years; so with Illinois, Wisconsin, and Florida. The census of Ohio, Missouri, and Arkansas is taken once in 4 years; Indiana and Alabama, 6; Michigan, South Carolina, and Tennessee, 10; Iowa, 2; Georgia, 7; Texas, 8; Mississippi, irregularly. Virginia, by her new constitution, has provided for a decennial census intermediate with that of the United States, while no provision for a periodical census has been made by the states of Maine, New Hampshire, Vermont, Rhode Island, Connecticut, Pennsylvania, New Jersey, Delaware, Maryland, North Carolina, and Kentucky.

CENT (a contraction of the Latin word *centum*, a hundred), a United States coin of the

value of the  $\frac{1}{100}$  of a dollar, first made of copper under act of congress, 1787, in New Haven. The same year Massachusetts authorized the making of coins of the same value, which was done the next year. The cent with the symbolical head and the inscription of "Liberty" was ordered by congress in 1792, and first coined in 1793. In 1857 a coin composed of 88 parts copper and 12 parts nickel was issued, which, being of smaller size than the old cent and equal in value, is designed to replace it.

CENTAURS, a mythological race of creatures, half man, half horse, and, in addition to this, semi-divine, who were believed especially to inhabit the passes of Mts. Pelion and Ossa and the great plains of the Thessalotis and Pelasgiotis, in upper Greece. They are mentioned 8 times in the Iliad, twice under the appellation *φῆρες*, which is merely the Æolic form of the common Greek word *ῥῆρες* (wild beasts); under which appellation, with the addition of the epithet *θεῖος*, godlike or divine, they are also spoken of by Pindar, and once under their appropriate name *Κενταυροί*. They are also mentioned by name, as centaurs, in the Odyssey. It does not distinctly appear whether, by the writer of the Homeric poems, the centaurs were understood or intended to be received as semi-human, semi-ferine animals, no allusion being made directly to their form or attributes; but the use of the word *φῆρ*, wild beast, as applied to them, which never, so far as is known, is used by any classic writer in speaking of a human being, would seem to be conclusive. The legend concerning the origin of the centaurs is twofold. Ixion being, in consequence of an atrocious crime, in the murder of his father-in-law, Deioneus, refused all intercourse or fellowship with mankind, Jupiter invited him in mere compassion to reside on Olympus. Incapable of gratitude, however, and forgetful of all rules of hospitality, he at once attempted to seduce the wife of his entertainer, Juno. By a concerted plan, however, of the god and goddess, a cloud woman, formed into Juno's semblance and vivified for the time, was substituted for her, and the intrigue proceeded, until the seducer, boasting of his success with the immortals, was bound on an ever-revolving wheel in the abyss of Tartarus, while the cloud became the mother of the centaurs; or, according to the myth as given by Pindar, of a son of human form called Centaurus, who, wandering wild about the roots of Mt. Pelion, fell in with the Magnesians mares, from his association with which arose the semi-human race of centaurs. As to form, these beings were represented in sculpture as horses, perfect in all respects below and behind the withers and the chest; there, at the insertion of the neck, began a human body, the hip joints articulating into the shoulders of the lower animal, and the abdomen of the man uniting at the perinæum with the chest of the horse. Above this the human conformation was perfect, with the erect bearing, chest, shoulders, arms, neck, and head of a

complete man, endowed with all the best physical proportions and qualities of manhood. So far, indeed, were the centaurs from being regarded as rude, dull, brutish monsters, such as the minotaur, the cyclops, and other misformed and gigantic varieties from natural or human forms, that extraordinary and unusual powers, not of body only, but of mind and intellect, are attributed to them. They were in all respects, in fact, superior, not inferior, to men; in arts, in grace, and in wisdom, no less than in swiftness of foot or strength of limb.

**CENTAURUS**, or **THE CENTAUR**, a southern constellation, only a small part of which rises in our latitude. Two stars of the first magnitude are catalogued in the portion which does not appear above our horizon. This is one of the 48 ancient constellations formed by Ptolemy, who first discovered the likeness of a centaur in it. On the celestial maps of the Arabs it is represented by a bear mounted on horseback.

**CENTAURY**, a genus of plants comprehending a large number of unimportant species, which are natives of Europe, Asia, Africa, and a very few of America. One of the species is fabled to have cured the centaur Chiron of the wound in his foot made by the arrow of Hercules, and to have hence derived its name. It was formerly supposed to have extraordinary medical powers, and said to cure not only fevers, but also the plague, and the worst ulcers, but is now in no repute among physicians.

**CENTENARIUS**, an officer in the armies of the middle ages who had the command of 100 men. Also, the person who conducted the administration of justice in a village.

**CENTIARE**, a French measure, the  $\frac{1}{100}$  part of an *are*, which see.

**CENTIGRADE SCALE**, or the **CENTESIMAL**, is the division into 100 parts, named grades or degrees, adopted particularly for the French thermometer. It was introduced in 1742 by Celsius, professor at Upsal, the limits of the division into 100° being the boiling and freezing points of water, though the scale was made to extend to convenient lengths below and above these points. In Fahrenheit's scale, the freezing point being 32° and the boiling point 212°, 180° include the same range as 100° of the centigrade thermometer. The proportion of one degree of Fahrenheit to one of the centigrade is hence as 5 is to 9. But as the zero point of the Fahrenheit thermometer is 32° below the freezing point, which is the zero point of the centigrade, this number must be added to the results obtained as the corresponding degree on Fahrenheit's scale to one upon the centigrade. Thus, if the proportion be applied to 15° of the centigrade scale, this being multiplied by 9 and divided by 5, the corresponding degree on the Fahrenheit scale is found by adding 32° to 27°, which gives 59° as the result.

**CENTILOQUIUM**, a collection of 100 sayings or opinions. The centiloquium ascribed to Hermes Trismegistus contains 100 aphorisms or astrological sentences, and is supposed to

have been written by some Arab of the 4th century. There is also the famous centiloquium of Ptolemy, containing 100 doctrines in short sentences.

**CENTIPEDE**, an articulated animal, formerly considered an insect, but since the time of Dr. Leach placed in the class *myriopoda*, and in the genus *scolopendra*. This class is distinguished from insects by the far greater number of feet, by the more numerous segments of the body, and by the absence of any distinct division between the thorax and abdomen. With the exception of the first, each segment has a pair of legs, terminated generally by a single hook; from the occurrence of the stigmata, or respiratory openings, on each alternate segment, Latreille and others, from the analogy of insects proper (which have 3 stigmata on each segment), have considered these as semi-segments, and have consequently given 2 pairs of legs to each segment. The feet are very much approximated to each other for the whole length of the body; the mandibles are bi-articulated, and followed by a piece formed like a labium with articulated feet-like divisions, corresponding in position to the *laguette* of *crustacea*; then come 2 pairs of little feet, of which the second, hook-shaped often, seem to replace the 4 jaws of crustaceans, or the 2 maxillæ and lower lip of insects; they may be regarded as maxillary feet. The antennæ are 2, varying greatly in their shape, length, and number of joints. The organs of vision are usually formed by the union of simple eyes, but in some they resemble the compound eyes of insects, with larger facets. All myriapods are wingless. Unlike insects, in this class the number of the rings, and of the feet belonging to them, increases with their age; from the fact that some genera are born without feet, Latreille asserts that they undergo a true metamorphosis, though the separate states of *larva*, *pupa*, and *imago* do not exist in them any more than they do in most apterous insects. The organs of respiration consist of 2 principal parallel tracheæ along the body, into which the stigmata open. The myriapods seem to approximate somewhat to the crustaceans on one hand, and to the insects on the other. They generally avoid the light, concealing themselves under stones, beneath the bark of trees, in old timber, and similar localities; some live in fruits, others destroy vegetables, and many feed on dead and living animal substances. Latreille divides myriapods into 2 orders: 1, *chilognatha*, of which the best known genus is *scorpio* (Latr.); and 2, *chilopoda*, containing the genus *scolopendra*, which, in the unrestricted latitude given it by Linnaeus, included all the genera of the order, all of which have at various times been designated as centipedes, or millepedes. In the order chilopoda the antennæ are slender toward the extremity, having 14 or more joints; the mouth consists of 2 mandibles with a palpiiform appendage, terminated like the bowl of a spoon with indented

edges; the labium is quadrid, and its 2 lateral divisions, the largest, are transversely ringed, and resemble the membranous feet of caterpillars; they have beside 2 palpi or little feet, united at the base and unguiculated at the end, and a second labium formed by a second pair of feet, terminated by a strong movable hook pierced at the end for the issue of an acrid liquid. The body is membranous and flattened, each ring being covered by a coriaceous plate, and having for the most part but one pair of feet, the terminal segment being elongated into a kind of tail; the sexual organs are interior, and placed at the posterior extremity of the body.—The centipedes move very rapidly in an undulating manner; they can walk backward, using only the 4 hind legs, which in ordinary progression are dragged after them; they avoid the light, and are carnivorous in their habits; they are much dreaded by the inhabitants of warm climates, where they attain a large size, and are capable of inflicting dangerous wounds; it is said that their bite, though more painful than that of the scorpion, is never fatal; the common species of Europe (*Isthobius forficatus*, Linn.), very abundant under stones in the summer season, is quite harmless, though repulsive in its aspect. The genus *scutigera* (Lam.) has the body covered with 8 plates, 15 pairs of legs, and large reticulated eyes; they are nocturnal in their habits, and pierce their insect prey with their mouth-hooks, producing almost instant death; according to Illiger, they are dreaded by the inhabitants of Hungary. The genus *scolopendra* (Leach) has 21 pairs of legs, of which the basal joints of the terminal legs are armed with spines; the segments are nearly of equal size and number above and below. The *S. cingulata* (Latr.) of southern Europe is almost as large as some of the species of tropical America. Several species of South America and the West Indies have doubtless been confounded under the *S. morsitans* (Linn.), one of which grows to the length of a foot; very large species also occur in Asia, Africa, and the Indian archipelago. Ammonia is the best application to their bites. Though among the most disgusting of living creatures, Humboldt says, in his "Personal Narrative:" "I have seen Indian children, of the tribe of the Ohaymas, draw out from the earth and eat millepedes or scolopendras, 18 inches long and 7 lines broad." Of the genus *oryctes*, Dr. Leach mentions 2 species found in the vicinity of London; the eyes are very small, the antennæ are grained, and the basal joint of the more slender hind feet is without spines. In the genus *geophilus* (Leach), the antennæ have only 14 joints, but the legs vary in number from 42 to nearly 300; they are very slender, and some are phosphorescent; they are destructive to fruit and vegetables.—The position of the myriapoda can hardly be said to be determined. Siebold says they do not properly belong either to *arachnida* or *insecta*, and he classes them under *crustacea*. Rymer Jones observes that they differ from

crustacea by their respiring air by means of tracheæ, and from annelids by their jointed legs, and that they seem to be an oculant group, allied to annelids, insects, arachnida, and crustacea; they have urinary organs like insects, which crustacea have not. Prof. Agassiz makes them the lowest order of the class of insects, the other orders being arachnids and insects proper. Mr. Newport ("Annals and Magazine of Natural History," vol. xii., 1843, p. 228) traces the nervous system from the highest *chilognatha*, the most perfect of which are connected on the one hand with crustacea, and on the other with true insects, through the *geophili* (the lowest vermiform type of the *chilopoda*), to the tailed *arachnida* (the scorpions), and through *scolopendra*, *lithobius*, and *scutigera*, the last of which connects the myriapoda on the one hand with true insects, and on the other with arachnida. The heart, or dorsal vessel, as in insects and arachnida, is divided into several compartments, corresponding in number to the abdominal segments.

OENT JOURS, the second period of Napoleon's reign, so called because it lasted precisely 100 days, from March 20, 1815, when he re-entered Paris on his return from Elba, to June 28 of the same year, when the second restoration was established. (See BONAPARTE.)

OENTLIVRE, SUSANNA FREEMAN, an English dramatic authoress, born in Lincolnshire, in 1687, died in London, Dec. 1, 1728. Early an orphan, and maltreated by those to whom her education was confided, she fled from school while very young, intending to go to London. While travelling on foot it is related that she fell in with a Cambridge student, who persuaded her to accompany him to Cambridge, where she assumed masculine attire, and studied several months. To save her friend from suspicion she went from Cambridge to London, where nothing is known of her till at the age of 16 years she married a nephew of Sir Stephen Fox. Soon losing her first and also her second husband, who was named Carrol, she devoted herself to poetry, and produced a tragedy and several comedies. She also engaged as an actress, and while performing before the court at Windsor attracted the attention of a young man who was chief cook to Queen Anne, named Centlivre, to whom she was soon after married. From this time she lived in intimacy with Steele, Rowe, Farquhar, and other literary men, but incurred the enmity of Pope, by whom she was unjustly characterized in the first editions of the "Dunciad." Her comedies are esteemed for the ingenuity of the plots and the vivacity of the dialogue. The best of them are the "Busy-Body," the "Bold Stroke for a Wife," and the "Wonder, a Woman keeps a Secret."

OENTO (Lat. *cento*, patch-work), a poem composed wholly of verses taken from one or more poets, but disposed in a new order so as to form a distinct work. The only classical example is the *Cento Nuptialis* of Ansonius,



formed out of Virgilian verses perverted into a new meaning. According to the rules laid down by Ausonius, the verses may be either taken entire, or divided into halves, one half to be connected with another taken elsewhere; but 2 verses are never to be taken together. The empress Eudoxia wrote the life of Jesus Christ in Homeric centos; Proba Falconia, under the emperor Honorius, wrote the same in verses extracted from Virgil. The same subject was treated in a Virgilian cento by Alexander Ross, a Scotch schoolmaster and poet, in his *Virgilius Evangelisane*, which was republished in 1769.

**CENTRAL AMERICA.** See **AMERICA**, vol. i. p. 460.

**CENTRAL FORCES** are forces emanating from a centre. The only familiar examples are the forces of gravity and electricity. They produce, in any body upon which they act, a motion whose path is determined by the rate at which the force varies with a change of distance from the centre. The force of gravity is diminished to  $\frac{1}{4}$  by doubling the distance, and in general varies as the square of the distance. It follows from this that a body moving under the influence of gravity must move in a conic section, that is, the orbits of all planets, comets, and satellites must be ellipses (parabolas or hyperbolas).

**CENTRAL HEAT.** Since the year 1740, when the first observations respecting the increase of heat encountered with the increased depth below the surface were made by M. Genesanne in the lead mines of Geromagny on the upper Rhine, abundant data have been collected by scientific men in various parts of the world, establishing this as a general fact. The deepest mines of Mexico, England, France, Germany, and other countries, and the deeper artesian wells, and the hot springs ascending from still deeper sources, all lead to this conclusion. The volcanic fires add their testimony to the existence of intensely heated masses beneath the crust of the earth, and the vast extent of surface agitated when they are suppressed, and relieved by their outlet, seems to indicate an almost general diffusion of the liquid molten masses from which they spring. Not only is the heat found generally to increase with the depth, but the rate of this increase has in many instances been determined. It is found to vary in different countries, in some increasing 2 or 3 times more rapidly than in others. The average rate is estimated by Kupffer at  $1^{\circ}$  F. for every 37 English feet; and by Cordier at  $1^{\circ}$  for every 45 feet. These phenomena, all pointing in one direction, have led to the conclusion that somewhere in the interior the materials of the globe must be in a state of the most intense heat; and calculations have been made showing at what depth the rocks must all exist as liquid lava, at what the temperature of melted iron would be found, at what platinum would fuse, and at what various matters, solid at the surface, would be volatilized, but for the enormous pressure.

Thus has been established the theory of central heat. It is controverted by Sir Charles Lyell, M. Poisson, and other eminent authorities, on these grounds: When substances, as metals, are melted, their temperature cannot be raised a single degree above the point of fusion so long as a piece of the material remains unmelted. The same principle is exemplified in the impossibility of raising water to a higher temperature than  $82^{\circ}$  F. so long as a fragment of ice remains in it. The principle may be applied to the solid crust of the earth, which could no more remain unchanged, reposing upon the surface of a fluid heated many times above the temperature at which its materials would melt, than a stratum of ice of the same thickness could remain in the same situation exposed to the same proportional difference of heat. The crust that forms upon lava as it cools cannot be instanced in disproof of this statement, for this only forms when the heat is so much reduced that ebullition has entirely ceased; if this be renewed, the crust soon disappears in the fluid. Were the crust of the globe the result of partial cooling from a state of primitive fluidity, the whole planet must first have cooled down to about the temperature of incipient fusion, and hence the enormous degrees of heat supposed cannot exist within it. M. Poisson "imagines that if the globe ever passed from a liquid to a solid state by radiation of heat, the central nucleus must have begun to cool and consolidate first." Were the central portion fluid, tides would be perceived in the mass, sufficient to cause the surface to rise and fall every 6 hours; but no such fluctuations are observed, even in a crater like that of Stromboli, which is supposed to connect with the great central ocean of lava. The phenomena that have given rise to the hypothesis combated by these views do not perhaps require this theory to account for them. Local heat is without question generated by chemical changes taking place among the materials beneath the surface. These give rise to electrical currents, of the power of which to disturb the surface we can form little idea, but judging from their effects upon the limited scale on which they come under our observation, it would seem quite as philosophical to refer to them the phenomena connecting distant volcanic outbreaks and earthquakes, as to call in an aid so entirely hypothetical as that of the molten fluidity of the central portion of the globe.

**CENTRE**, in general, a point equally distant from the extremities of a line, surface, or solid. The centre of a conic section is a point which divides all the diameters into 2 equal parts. In the ellipse and circle this point is within the figure; it is outside of the figure in the hyperbola, and at an infinite distance from the summit in the parabola.—The **CENTRE OF GRAVITY** is a point in the interior of a body or system of bodies so situated that a plane passing through it in whatever direction would divide the body into 2 portions of exactly equal weight.

**CENTRE**, a central county of Pennsylvania; area about 1,000 sq. m.; pop. in 1850, 28,855. It is traversed by the Alleghany, Bald Eagle, and several other mountain ranges. It is drained by a number of small creeks, which supply several mills and factories with water power. The soil is excellent in the valleys, and agriculture is in a forward state. The mountains are covered with valuable timber, but furnish little land suitable for cultivation. There are extensive mines of iron, quarries of limestone, and beds of stone coal in several places. The agricultural productions in 1850 amounted to 483,612 bushels of wheat, 316,112 of corn, 186,204 of oats, 18,530 tons of hay, and 414,715 lbs. of butter. There were 48 churches, and 4,517 pupils in the public schools. The county was organized in 1800, and named from its position. Capital, Bellefonte.

**CENTRIFUGAL FORCE**. The tendency which a body moving in a curved path has to fly from the curve, has received the ill-chosen name of centrifugal force; ill-chosen, since it is not a tendency to fly from the centre, but simply to continue moving in the direction which it has at any particular moment. A stone whirled in a sling flies off at right angles to the string at the moment of its release. An apparently centrifugal force is sometimes manifested where the body is restrained from moving in a tangent, and only allowed to slide on a radius. Centrifugal force, in this sense, is a very valuable mechanical power, of great practical use in such operations as draining washed wool, or draining the oil from steel pens; since, by the revolution of such articles in a network cylinder, a force can be communicated to the adherent particles of fluid very far exceeding that of gravity, without injury to the fibre or finish of the solid articles.

**CENTRIPETAL FORCE**, a central force of attraction; that is, a force tending, like that of gravity, to move a body to a fixed centre.

**CENTUMVIRI**, in Roman antiquity, a college of judges, who decided civil cases, and questions relating to the rights of family and succession. This court was instituted, according to Niebuhr, as early as the time of Servius Tullius; and as its number was ordinarily about 100, it received the name of the tribunal of the centumviri. It was divided into 4 sections or councils, before 2 or the whole number of which cases might be pleaded. This tribunal acquired its greatest importance under the empire, and was entirely suppressed by Theodosius, A. D. 395.

**CENTURIES OF MAGDEBURG**, a voluminous history of the church, and the first Protestant work of the kind; so called from the plan of arrangement adopted, which was to treat the history in periods of 100 years each. It was written in Latin, and published in Basel, 1559-'74, in 18 vols. folio, bringing the history down to the 14th century. The originator of the plan of the "Centuries" was Matthias Flacius, that violent opponent of the Interim, and so of

Melancthon. The first 4 centuries were composed at Magdeburg (whence the name); the 5th, begun at Magdeburg, was finished at Jena; the 6th was written while the authors were sequestered from persecution; the 7th in Mecklenburg, and the remaining 6 in the city of Wismar. The publication was attended with much labor, from the comprehensiveness and complication of the plan. Of its execution Eichhorn, the celebrated German orientalist and theologian, speaks favorably. Each century is treated under 16 heads, viz.: general historical view, extent and propagation of the church, persecutions, doctrines, heresies, rites and ceremonies, government, schisms, councils, biographies, heretics, martyrs, miracles, condition of the Jews, other religions, political condition of the world. The authors are called centuriatores. A new edition by Baumgarten and Semler (Nuremberg, 6 vols. 4to., 1757-'65), brings down the work only to the year 500, and an abridgment by Osiander continues it to the 17th century (16 vols. 4to., Tübingen, 1607-'8). The principal writers, beside Flacius, were Wigand, Judex, Faber, Corvinus, and Holzhauser.

**CENTURION**, an officer of the Roman army, in some respects corresponding to the rank of the modern captain. His command was the military division called a century, *centuria*, which corresponded with the civil division called a *curia*, so that the rank of *centurio* in the army was equivalent to that of *curio* in the state. It is supposed by Niebuhr, and other writers of the first authority, that the original century consisted of 80 men, and the great scholar first named is of opinion that the influence of the favored number, 80, can be traced throughout the whole of the ancient array of the Roman army. In later times the legion of heavy armed foot, *hastati, principes*, and *triarii*, without including the *velites*, or light-armed skirmishers, consisted of 80 maniples, each of which contained 2 centuries. In the time of Æmilius Paulus and Scipio, the strength of the legion when at its full war complement was 6,000 men, each century of course containing 100, each maniple 200, and each cohort—a later division of 8 maniples, variously attributed to Marius, Sylla, and Julius Cæsar—800 men. The centurion who commanded the right century of the maniple, was styled properly *centurio*; he who commanded the left, *sub-centurio, optio*, or *uragus*.

**CENTURY**, in Roman antiquity, a company of 100 men, forming the 6th part of a cohort, and the 60th part of a legion. Servius Tullius carried this military division into the civil organization, and divided the Roman people into 6 classes according to property, which were subdivided into 195 centuries. To each of these centuries belonged a voice in the *comitia centuriata*; but as the first or most wealthy class of citizens comprised 98 of the centuries, it had a preponderance in the government. Each century was divided into 2 sections, that of the *seniores*, consisting of citizens from 45 to 60

years old, and that of the *juniores*, of citizens from 17 to 45 years old. (See *CENSUS*.)

CEOS, also called CEA, now ZEA, a small island of that Greek group called the Cyclades, lying off the point of the promontory of Sunium, Cape Colonna, at 12 or 18 m. distance, a very little S. of E. from it, and nearly twice that distance S. of the south point of the island of Negropont. It is now scarcely 12½ m., or 100 Greek stadia, in length; but Pliny writes that it was torn away from Euboea, or the Negropont, by an earthquake; and that after that a great part of it was carried away by the sea on the side of Boeotia. It was famous for its fertility and pasture lands. Herodotus states it to have been an Ionian colony from Attica, and that it furnished a few galleys to the fleet of the confederate Greeks at Artemisium and Salamis. It once had 4 cities: Iulia, the seat of the modern town of Zea, and the birthplace of Simonides, Carthæa, Coreesia, and Poëessa; but in the days of Strabo, the two latter had been abandoned, and their inhabitants removed to the others.

CEPHALONIA, or CEPHALLENIA (Gr. Κεφαλληνία), called by Homer Samos (Σαμος), or Same (Σαμη), the largest of the Ionian islands, separated from Ithaca on the E. by a narrow channel. Area, 848 sq. m.; pop. in 1856, 70,481. The country is rugged and mountainous, particularly in the N. part, and the Black mountain, as the Mount Ænos of antiquity is now called, constitutes the most picturesque feature of Cephalonia. The climate is usually mild. The soil produces little corn, but some wine, oil, honey, and all the fruits of southern Europe. Currants, the staple product of the Ionian islands, come chiefly from Cephalonia. The blight of 1853-55 has injured the crops materially, and reduced the exports from 40,000,000 to 11,000,000 lbs. The total value of currants received in the United States during the year ending June 30, 1856, was \$127,089, and in 1857, \$151,418. The large share which Cephalonia bears in the currant trade may be gathered from the fact that of 5,570,881 lbs. exported to England in 1855, 4,868,400 lbs. were from that island. The harbor is excellent, and ship building and various other branches of trade and industry are carried on actively. The imports consist mainly of breadstuffs and of the manufactures and wares of Europe. There are 11 public schools in the island, and 78 private schools. The Greek church is the predominant religion, and the inhabitants are chiefly Greeks. Property is much more divided in Cephalonia than in other parts of the Ionian islands. About ¼ of the cultivated land belongs to the convents, of which there are more than 20, and many of them, as for instance the convent of Sisi, are very ancient. The island is supposed to have been originally inhabited by Taphians, and to have derived its name from the mythical Cephalus. There were 4 cities in Cephalonia in the times of antiquity, viz., Pale, Oranii, Proni, and Samos. The site

of Proni, and still more that of Samos, still exhibit extensive and interesting ruins. The latter city, which was more populous than the other 3, is frequently mentioned by Homer, while the inhabitants are spoken of by the poet as the Cephallenians. Thucydides called the island a tetropolis (composed of 4 states), and still other names were applied to it. But the name of Cephallenia first occurs in Herodotus.—The island belonged successively to the Greeks, the Macedonians, the Roman Byzantine emperors, the Normans, the Venetians, the Turks, and the French. It forms now one of the 7 Ionian islands under the protection of Great Britain. In Aug. 1849, a terrible insurrection broke out in the island, which could only be suppressed by the most energetic measures on the part of the British governor. Cephalonia sends one member to the Ionian senate, and 7 deputies to the legislative assembly. Cephalonia and Zante form one diocese, the bishop's seat being at Lixuri, in Cephalonia. The capital of the island is Argostoli.

CEPHALOPODA (Gr. κεφαλή, head, and πούς, foot), a class of molluscan animals characterized by their organs of motion being arranged about the head. These organs are called feet and arms, either of which names may be properly given, since they serve not only as means of locomotion but for securing a hold upon any object. The animals are also furnished with eyes and organs of hearing. The mouth, which is situated in the centre of the circle of feelers, is furnished with a pair of horny jaws, in shape resembling the bill of a parrot. The tongue is rough and prickly. Being aquatic, the cephalopoda breathe through gills. Most of this class possess something resembling shells, though only the nautilus and argonaut are entirely covered with them. Their arms are supplied with suckers, by which they fasten themselves to and overcome animals much larger and better protected than themselves. Even the firm covering of lobsters and crabs cannot defend these animals from their soft-limbed opponents, which by means of their suckers fasten firmly upon the shell, and with their strong beaks tear it in pieces. To the class cephalopoda belong the nautilus, the argonaut, the loligo, and the well-known sepia or cuttle-fish. This last-named species, being entirely unprotected by a shell, is furnished with a bag containing a dark-colored fluid. When attacked, it throws out this secretion and so tinges the water that it makes its escape. This ink is collected from the fish in the India seas, and forms the valuable pigment known as sepia. Many extinct species of cephalopoda are abundantly found in all the fossiliferous rocks.

CEPHALUS, in Greek mythology, son of Deion and Diomede, and husband of Procria, whom he tenderly loved. Aurora was enamored of him, and anxiously prompted him to tempt the fidelity of his wife. Under the guise

of a stranger he came with brilliant presents to his house, and Procris did not withstand the trial. She subsequently diverted him from his duty, and the discovery of their mutual weakness led to a reconciliation between them. Cephalus afterward slew his wife with his spear, mistaking her for a wild animal, as she was jealously watching him in the wood. According to Ovid, Cephalus finally occupied and gave his name to the island Cephallenia.

CEPHISSIA, a village of Greece, 9 m. N. E. of Athens, with a grotto dedicated to the saints, and much resorted to by devotees.

CEPHISSIA, or MELAS (anc. *Cephisus*), a river of Greece. It rises in Phocis, flows generally E.; crosses the N. boundary of Boeotia; falls into Lake Copais.

CEPHISSUS, the name of several rivers in ancient Greece. The most famous of them was one of the two streams which flowed by Athens. It had its rise N. of the city, flowed southward from Mt. Parnes across the long walls, and emptied into the Phalerio bay. Modern travellers describe it as winding its way through olive groves in several streamlets.

CERACCHI, GIUSEPPE, an Italian sculptor, born in Rome in 1780, died Feb. 1801. He took an active part in the disturbances of the Papal States, and was obliged to seek refuge in France. He there joined a band of republican artists, who cherished a violent hatred against Napoleon, and at length made an attempt upon his life. The plot was formed in the autumn of 1800, and the fatal deed was to be committed Oct. 11, at the opera. The conspirators were betrayed by one of their number, their weapons seized, and Ceracchi with his associate Diana and 4 others arrested, and after a long and somewhat intricate trial, condemned, and all but Diana executed.

CERAM, OIRAM, SIRANG, or ZERAM, the second in size of the Molucca islands, in the Malay archipelago, lying N. of Amboyna, between Booroo on the W. and Papua on the E.; lat.  $2^{\circ} 47'$  to  $8^{\circ} 50' S.$ ; long.  $127^{\circ} 51'$  to  $181^{\circ} 56' E.$  Area estimated at 10,500 sq. m.; pop. at 226,000. Its topography is imperfectly known, but the general character of the surface is hilly, several mountain ranges, from 6,000 to 8,000 ft. high, traversing the island, and giving rise to a number of streams which empty principally off the S. coast. The loftiest peak is that of Noosaheli, 9,750 ft. above the sea. The climate is salubrious, vegetation is luxuriant, and the nutmeg and clove were produced spontaneously until extirpated by the Dutch in the 17th century. The sago palm here reaches the gigantic height of 100 ft., and a single tree sometimes yields 1,200 pounds of starch. Many varieties of noble forest trees are found, but none suitable for ship building. The coasts are peopled by a hardy, enterprising Malay race, who subsist chiefly by fishing, and find a market for the produce of their toil at Singapore and the Sunda islands. Their vessels, called

prahus or *kora-kora*, are manned by from 80 to 60 rowers each. Most of these people are Mohammedans, but Christian missionaries have made many converts among them; and in one village of 620 souls, visited by Mr. Scherius in 1846, the Christians numbered 438. The Horaforas, or Alfoories, who appear to be identical with the mountaineers of Celebes and the Philippines, are the dominant tribe of the interior. They are described as a brave, honest, and in most respects peaceable race of idolaters, among whom Christianity has made some conquests. A custom once prevalent among them of collecting human skulls for ornaments, to obtain which they would not hesitate to immolate a living victim, is apparently becoming obsolete. A little maize, for domestic consumption or exchange for dress, firearms, and fermented liquors, is cultivated chiefly by women; while the men are engaged in war of hunting. The Horaforas of Ceram have prominent features, large eyes, and long frizzled hair; they are brave, faithful, obedient, and make good soldiers. The other inhabitants are governed by several chiefs, who are subject to the Dutch residents at Amboyna and Banda. The native princes meet the Dutch residents once in 2 years, and have their disputes adjusted by a court of 24 rajahs, at which the resident presides. The population has been thinned by the internal dissensions of the Malays, the attacks of the Horaforas and of pirates, and the ravages of the small-pox. The Dutch claim the sovereignty of the island, and have established several forts on it. On the N. E. coast are the bay and village of Waroo, where good anchorage, water, and provisions may be had.

CERASIN, the gummy matter that remains, when the viscid exudation from the cherry, plum, and some other fruit trees is digested in water. The portion which dissolves is supposed to be the same substance as arabin. Cerasin is a tasteless substance, insoluble in water and alcohol, and unfermentable. It differs from bassorin in its being changed by the action of boiling water into arabin. The substance is applied to no use.—Also the name of a peculiar kind of wax which is found coating the sugarcane.

CERATE (Lat. *ceratum*, from *cera*, wax), an ointment of stiff consistence, compounded of oil or spermaceti and wax, sometimes thickened with a powder.

CERBERUS, in Greek mythology, the monster that guarded the entrance to the infernal regions. He was a son of Typhon and Echidna, and is represented as a dog with many heads, the tail of a serpent, and a mane composed of the anterior extremities of numberless snakes. His business was to admit the spirits of the dead into their subterranean abode, but not to let them out again. Orpheus lulled him to sleep with his lyre, and Hercules dragged him from Hades, and exhibited him to the eyes of wondering mortals.

CERCADO, a province of Peru, in the de-

partment of Lima, bounded N. by the province of Chancay, E. by that of Huarochiri, S. by that of Cañete, and W. by the Pacific ocean. Length from N. to S., 89 m.; breadth, 24 m. It has a fertile soil, watered by the Rimac and the Lurin, and yielding grain, fruit, sugar, pasturage, and legumes in abundance. The climate is mild, but unhealthy. Rain never falls except in winter, and then in small quantities, but a gentle distillation of moisture (*garra*) frequently takes place. The province suffers much from earthquakes. Lima, the capital of the country, and Callao, its port, are the principal towns.

**CERDONIANS**, ancient heretics, whose belief, half philosophical, half religious, was a confused mixture of Christian dogmas with oriental dualism and Gnostic ideas. Their founder, Cerdo, was a Syrian, who came to Rome about the year 139 under the pontificate of Hyginus. He maintained the existence of the Zoroastrian two principles, one of good and the other of evil. The latter, according to him, was the creator of the world and the God and lawgiver of the Jews. The former was the creator of Jesus Christ, whose incarnation, sufferings, and death were only sensible appearances, and not vital facts. His disciples became confounded with those of Marcion, who some years later propagated similar opinions.

**CERÉ, JEAN NICOLAS**, a French botanist, born in the Isle of France in 1787, died there, May 2, 1810. Under the direction of the French government he greatly extended the culture of spices in the Isle of France (now Mauritius), when that island was a French dependency. The agricultural society of Paris published his essay on the culture of rice, and awarded him a medal; and Napoleon confirmed him in his position as director of the botanical garden of the Isle of France, and conferred on him a pension of \$120. A tree of the island has been called after him, *Cerea*.—**HORTENSE**, his youngest daughter, has translated several novels from English into French, and written a tragedy and sacred poetry.

**CEREAL GRASSES**, those grasses which produce the bread corns, as wheat, oats, barley, rice, rye, and maize; these having been called the gift of Ceres.

**CEREALIA**, a festival celebrated at Rome every April in honor of Ceres, if the citizens were not in mourning for some public calamity. If they were, its celebration was omitted, because no person wearing mourning could be present at it. On the occasion of this festival the wanderings of the goddess in search of her daughter were represented by women dressed in white, running about with lighted torches; and games were celebrated in the circus maximus, the spectators of which appeared in white robes.

**CERES**, the goddess of grain and harvest among the Greeks and Romans, was a daughter of Saturn and Rhea, and the mother of Proserpine. She dwelt with the immortals on Olympus, till after the abduction of her daughter

Proserpine by Pluto with the connivance of Jupiter. Ceres then abandoned in her anger the abode of the gods, and descended to earth to wander among men. On all who received her kindly she conferred presents and blessings; but on those who treated her inhospitably, or alighted her gifts, she inflicted severe punishments. In her grief she took neither nectar nor ambrosia, nor attended to her person; and instead of exhibiting her celestial charms, she went in the guise of an old woman. In the course of her wanderings she came at length to Eleusis, where she was hospitably received by its king, Celeus, whose wife, Metanira, engaged Ceres to nurse her infant son, Demophon. Under the care of the goddess the child threw like a celestial. As he lay on her bosom, Ceres breathed on him, and anointed him with ambrosia; and every night, ere she put him to rest, she immersed him in the fire unknown to his parents. Ceres purposed to make the child immortal, but the folly of his mother frustrated her intention. Metanira, wondering at the marvellous growth of her son, became curious to know how his nurse treated him. Watching one night, therefore, she saw with terror and astonishment the ordeal through which her child was made to pass, and she shrieked aloud at the sight. The goddess instantly dropped the infant, and he perished in the flames; but to make up for the loss, she bestowed great favors upon Triptolemus, the other son of Celeus. Ceres then cast off her disguise, and appeared in her real character, commanding the people of Eleusis, at the same time, to build her an altar and a temple. A temple was presently raised in the vicinity, in which the sorrowing Ceres took up her abode. In the mean time, the indignation of the divine mother had visited the earth with a famine. Jupiter therefore sent Iris to Eleusis to entreat Ceres to suffer the earth once more to bring forth her fruits, and to endeavor to prevail on her to return to Olympus; but with neither request would she comply, save on condition that her daughter Proserpine should be first restored to her. All the other divinities of Olympus were successively sent to her on the same mission, but in vain. Jupiter, finding at length that it was impossible to shake her determination, sent Mercury to Erebus to beg of Pluto that he would permit Proserpine to return to the earth on a visit to her mother. The king of Hades at once complied with the request, but while announcing to his consort that she was at liberty to return to her parent, he cunningly handed her a pomegranate seed, which she incautiously swallowed. Proserpine was then conducted by Mercury to Eleusis, and delivered to Ceres. After the first burst of joy at this unexpected meeting had subsided, Ceres asked Proserpine if she had tasted aught in the nether world, to which the latter replied that she had—a single pomegranate seed. Then, said the mother, you must spend one-third of every future year

in the regions of darkness with your husband, but the other two-thirds you will be privileged to pass on earth with me. The wrath of the goddess was now appeased. She caused the earth to yield her fruits in abundance as of old; she instructed the Eleusinian sovereign and his nobles in the mysteries of her worship; and when Jupiter sent Rhea to invite her once more to Olympus, she cordially accepted the invitation, and went thither with her daughter to take up her abode again among the immortals.—The chief seats of the worship of Ceres, beside Rome, were Attica, Arcadia, and Sicily, where she was adored under the name of Demeter. The principal sacrifices offered on her altars were swine, the symbols of fertility, oxen, cows, honey, cakes, and fruits. Her image resembled that of Hera or Juno in its maternal character, but expressed more mildness and dignity. She was represented sometimes in a sitting attitude, sometimes walking, and sometimes riding in a chariot drawn by horses or dragons. Her attire was always complete, and on her head she generally wore a garland of corn, or a band of ribbon; while in her hand she held a sceptre, a bunch of corn, or a head of poppy, and occasionally a torch or mystic basket. The principal festivals of the goddess were the Thesmophoria and Eleusinia in Greece, and the Cerealia at Rome.

**CÉRÉT**, a French town and arrondissement in the department of Pyrénées-Orientales. Pop. of the arrondissement in 1856, 42,181, and of the town, 8,488. The latter is surrounded by high tower-flanked walls, and is situated 16 m. from Perpignan, near the right bank of the river Tech, which is crossed by a very high bridge—a bold structure of a single arch, and resting on two rocks. This bridge, a fountain of white marble, and a pleasure ground, are the only fine sights of the town, which is ill-built, with narrow and badly paved streets. Its chief industrial products are corks, leather, and copper ware. The agricultural produce of the arrondissement is hardly sufficient for local wants, but there are various iron works, a good nail manufactory, and some other industrial establishments. Céret is the place where the Spanish and French plenipotentiaries met, from March 22, 1659, to April 24, 1660, to fix the boundaries of the two countries. The French were defeated here by Ricardos, April 20, 1798; and on April 29 and 30 of the following year, Gen. Dugommier, with only 3,000 men, carried the bridge and the adjoining gorges, which were defended by 10,000 Spaniards.

**OEREUS**, the name given to several species of cactus. The most beautiful of them is the night-blooming cereus (*cactus grandiflorus*, Linn.), a native of parts of South America and the West India islands, and cultivated for its large, beautiful, sweet-scented flowers, which begin to open in the evening and are quite faded before morning. The petals are white, set in a calyx of golden yellow within, encir-

cling a vast number of recurved stamens, and opening to a diameter of nearly 1 foot. During the few hours of its existence the flower perfumes the air to a considerable distance and is of unrivalled beauty.

**OERIGNOLA**, a well-built and agreeably situated town of Naples, on a rising ground in the province of Capitanata, 24 m. S. E. of Foggia; pop. 10,500. The inhabitants are engaged principally in the cultivation of almonds and cotton, and also in linen manufactures. In 1508 (April 28) the Spaniards, commanded by Gonzalvo de Cordova, here defeated the French under the command of the duke of Nemours, who lost his life in the battle. In the principal street of Cerignola is a *milliarium*, recording that Trajan laid out the road from Beneventum to Brundisium at his own cost.

**CERIGO** (anc. *Cythera*), the southernmost of the Ionian islands, between lat. 36° 8' and 36° 22' N., and traversed nearly through its centre by the meridian of 28° E. long., at a distance of 150 m. from Zante, S. E. and at the entrance of the Laconian gulf. Its length from N. to S. is nearly 20 m., and its greatest breadth about 12. Area, 116 sq. m.; pop. in 1856, 11,868. The shores are abrupt and dangerous to shipping. Storms are frequent, the currents round the island being from its peculiar position very strong, and the air is rarely quite calm. The island is hilly, and abounds with streams. Although the soil is fertile in various parts, it has been little cultivated, but contains more pasture land and rears more cattle than any other Ionian island. Goats and sheep are also reared. Some corn and wine are raised, and about 7,000 cwt. of currants. The olive oil produced is of good quality, but limited in quantity. The most famous production of Cerigo is honey. The inhabitants still deserve the character of industry assigned by Heracleides Ponticus to the people of Cythera, many of the peasants of Cerigo resorting annually to the Morea and to Asia Minor to work there during harvest time. Cerigo is the place of banishment of the criminals of the other Ionian islands, and no longer wears the charming aspect which once made it the favorite island of the goddess Venus. It presents, however, vestiges of its former splendor, and contains 2 curious natural caverns, which possess some stalactites of singular beauty. According to Pliny, the island was once called Porphyra. The ancient name of Cythera, however, is as old as Homer. Cerigo contains an English garrison, which is usually relieved every 6 months, has 3 towns and 29 villages, sends one member to the Ionian legislative assembly, and, together with Ithaca and Pasco, one to the senate. The chief town is Oapeali, at the S. extremity of the island.—The principal dependency of Cerigo is a little island called **CERIGOTTO** by the Italians (anc. *Agilia*), now known as **LIVIA** to the inhabitants, lying about 20 m. to the S. E., midway between Cerigo and Creta, and containing about 40 families. Length, 5 m.; breadth,

from 1 to 8 mi. Cerigotto abounds with olive trees, and produces some fine wheat. In former times it was a noted retreat of pirates.

CERINTHUS, also called derisively MERINTHUS (i. e. cord), a religious personage of the apostolic ages, who is supposed to have come from Alexandria to Asia Minor; and to have resided at Ephesus simultaneously with St. John. He was a leader among those Gnostic Christian sects which appeared soon after the death of Christ. The Gnosticism of Cerinthus had a strong Judaistic element in the importance he attached, in common with the Ebionites, to an observance of the Jewish law as essential to salvation, and also in the notion of the vast chasm between God and the material world. He taught that it was not the Supreme God who revealed himself in the Jewish Scriptures, but a subordinate angel commissioned by the Supreme, with whom in his ignorance he identified himself. In this way he justified both the strictly divine character of Judaism to the Jew, and its subordination to Christianity to the Christian. Jesus he taught to be a mere man in his birth and existence until the baptism, when the Holy Ghost, which he considered to be the Christ, united itself with Jesus, and remained in this union until the crucifixion. Then, in time to leave the dying Jesus only a man again, the Christ or Divine withdrew. He attached no importance in the redemptive plan to the death of Jesus, but made salvation to depend on legal obedience. Caius, an anti-Montanistic writer, attempts to fasten upon Cerinthus the grossest and most sensual millenarianism, and even accuses him of having interpolated the Apocalypse to make it suit his chiliastic doctrines. It is true that Cerinthus taught the coming of a millennium on the earth, when Christ was to make Jerusalem the centre of his vast empire. This time he supposed would come after the earth had stood 6,000 years, and would be a perpetual sabbath of 1,000 years, a view which was common among the Jews of that age, and which has more or less perpetuated itself to the present day in Christian faith. His disciples were called Cerinthians, also Merinthians. A *Historia Cerinthi* was published by Paulus in Jena, in 1799.

CERITO, FRANCESCA, commonly called Fanny, a celebrated danseuse, born in Naples in 1823, is the daughter of an officer who served in the Neapolitan army under Murat. She made her debut at the San Carlo theatre in 1836, and, although only 13, was received with great enthusiasm. At Milan, in 1838, and for 2 years at the *Kärnthertheater* in Vienna, and afterward in Paris and London, everywhere the same storm of applause greeted her appearance, especially in London. She excels most in lively, gentle, arch, and delicate gestures and attitudes, and less in heroic or classical parts. Since 1850 she has been separated from her husband, Mr. St. Leon, who is favorably known in Paris and London as dancer and violinist.

CERIUM, a metal discovered in 1803 by

Hisinger and Berzelius, and named after the planet Ceres. The minerals which contained the metal were known long before this was recognized. As obtained and described by Mosander, it is a chocolate-brown powder, which oxidizes by the moisture of the air, decomposing this and setting hydrogen free. It takes fire in the air below red heat, burns rapidly, and passes into an oxide. It detonates with chlorate or nitrate of potash. It cannot be alloyed with any other metal, and is not known to possess any useful properties. It is extremely difficult to obtain it free from the oxide. Mosander succeeded in isolating it by decomposing the chloride with potassium. The protoxide of the metal forms 66 per cent. of the mineral cerite, which forms a bed in gneiss at Bastnäs, Westmannland, Sweden. It is also discovered in small quantities in several other minerals of no particular importance or interest in other respects.

CERNAY, or SERNHEIM, a French town in the department of Haut-Rhin, 13 m. from Mülhausen, watered by the river Thann, and on the railway from Mülhausen to Thann, connecting with Strasbourg and Basel. Pop. 2,500, engaged in the manufacture of cotton and linen goods, and in iron and copper foundries. The place is specially remarkable for its *asile agricole*, or rural asylum, for the training of destitute and vagrant children who, though not condemned as criminals, have shown depraved propensities. This asylum owes its origin to the benevolence of a few gentlemen of the neighborhood, who in 1847 formed a society and raised a suitable foundation fund; a house and piece of wasteland were hired, where each member of the society, on the payment of 100 francs per annum, was entitled to send an orphan, or a neglected child when the consent of the parents could be obtained. Secondary, of course, to religious instruction, agricultural employment was relied on as the great means of reformation; but as it was not a penal school, the family system was carried out to a much greater extent than at Mettray and other similar institutions. The number of children was limited to 30, in order that the personal and parental influence of the director might be felt by each child. The director, M. Zweifel, was brought up in the school of Fellenberg and Jacob Vehrli. The boys are instructed for 2 hours, morning and evening, in the various studies adapted to their condition and wants. During the day he is engaged with them in every description of field and garden labor. By their efforts and his own, aided only by a single farm servant, he has brought a large portion of the barren plain of Cernay into a high state of cultivation; and has thus exerted a valuable influence in stimulating the ambition of the small farmers of the neighborhood, while his boys are greatly in request as laborers and assistants on the adjacent farms. A small portion of land is allotted as a garden to each child, which he is taught to cultivate, and to raise both flowers and profitable pro-

lance, which he is allowed to dispose of for his own benefit. Great pains are taken to avoid every thing like display or grandeur in the buildings, the apparatus or furniture of the establishment, or the dress of its inmates. The design is to fit and adapt the boys for an intelligent peasant life. The director, though a man of superior education and talent, had in 1858 a salary of only \$250 per annum. The results attained by this establishment have been most satisfactory. Of 41 boys who had been discharged in 1858, and apprenticed or placed with small farmers, only 2 had turned out ill, and one of these was a young man admitted at the age of 16, whose vicious habits were too firmly established to be readily eradicated.

CERRETO, a well-built town of Naples, province of Terra di Lavoro, on the Apennines, 21 N. W. of Benevento; pop. 5,600. It has a cathedral, a collegiate church, and a diocesan school, 5 annual fairs, and cloth manufactories. It occupies the site of the Cernetum of the Romans, near which Pyrrhus was defeated, 75 B. C.

CERRO GORDO, a mountain pass in Mexico, on the national highway between Vera Cruz and the city of Mexico, rendered famous by the victory gained by the American forces, under Gen. Scott, over the Mexicans under Santa Anna, April 18, 1847. The *calzada*, or paved portion of the national road to the city of Mexico, extends from Vera Cruz N. to the city of Jalapa, some 70 m., crossing, half way, the stone bridge called *punte nacional*, and is carried through the defile of Cerro Gordo, at an elevation of 2,644 feet above the sea-level. Fifty miles from Vera Cruz a small plain stretches out, called the Plan del Rio. From this plain the road gradually ascends a distance of 4 m. through winding defiles, till it reaches the verge of the Cerro Gordo (big hill), a conical hill, which rears its summit 1,000 feet over the adjacent ascents. On the right, the road is alternately shut in by cliffs and chaparral, or thick brush, and on the left by precipitous walls of rock. Gen. Scott describes the locality as "a field of operations covering many miles, broken by mountains and deep chasms." It was along this road that the Americans, flushed with the recent capture of Vera Cruz and the castle of San Juan de Ulloa, were pushing onward to attack the enemy's capital. Scott was encamped on the Plan del Rio when word was brought him that the Mexican general, with a force equal to his exceeding his own, had fortified the pass of Cerro Gordo, and was determined to dispute the passage. The whole American force present in action and reserved was 8,500; the Mexican was estimated at 12,000 or more. Gen. Scott acted without hesitation. Making a careful reconnoissance, he found that the enemy had fortified himself on the ridge at the foot of the pass, and on the hill itself, and had, besides, established 2 batteries across the road, one at the throat of the pass, near the base of

the hill, and the other further on the road toward Jalapa; his defences on the heights being a series of breastworks covering each other, as well as commanding the road; the slope in front of his guns broken by ditches and brush to obstruct the advance of stormers; the extreme left of his position covered by the river flowing at the base of the ridge, his right being guarded by thick chaparral toward Jalapa, with which city his communication was open. In general terms, he held a fortified position, extending in a semicircle of 2 m. on the slope of a mountain defile, at the base of which lay the only road by which the Americans could advance, and which road was enfiladed by batteries. A tower near the summit of the hill, defended by 8 guns, commanded the whole of his works, and was, in effect, the key of his position. Neither the strength nor the weakness of this disposition escaped the American commander. In the forenoon of the 17th he ordered Gen. Twiggs to occupy a certain ridge on the right of the road. The American column, advancing boldly, drove in the outposts and took possession of the first ridge. The Mexicans, being reinforced, took possession of a second slope within range of the batteries on Cerro Gordo, and made a stout resistance, but were speedily dislodged, and driven at the point of the bayonet completely over the hill, a party of Americans boldly pursuing them to the edge of their lines. During the night the Americans managed, with incredible labor, by the aid of 500 men to each gun, to drag up to the summit of the hill 1 heavy 24-pounder, and 2 24-lb. howitzers. The appearance of this battery on the morning of the 18th greatly astonished the Mexicans. An 8-inch howitzer was also placed opposite the enemy's right battery. These preliminary operations being completed, Scott, on the evening of the 17th, drew up the programme of battle. This document is a model of perspicuity. Its substance is as follows: The enemy's whole line of intrenchments and batteries will be attacked in front, and at the same time turned, early in the day, to-morrow—probably before 10 o'clock A. M. Twiggs's 2d division of regulars will move forward before daylight, and take up position across the national road to the enemy's rear, so as to cut off retreat toward Jalapa. Twiggs may, or may not, be reinforced by 1 or 2 volunteer regiments, as circumstances shall determine. Worth's 1st division of regulars will follow the movement against the enemy's right at sunrise to-morrow morning. Pillow's brigade will march at 6 o'clock A. M., along the route already reconnoitred, and stand ready, as soon as he hears the firing on the right (sooner, if circumstances favor), to pierce the enemy's line of batteries as near the river as he may select. Once in rear of the batteries, he will turn to the right or left, or both, and attack them in reverse; when the enemy abandons the batteries he will pursue with vigor, until further orders. Wall's field battery and the cavalry will be held in



reserve, out of view and range, until the enemy's batteries are carried, when they, and all the divisions and corps, will pursue the enemy until stopped by the night or by fortified positions toward Jalapa. The main body of the army will not return to the field of battle, but will be followed immediately by the ambulances, and to-morrow by the baggage. Briefly: Twiggs was to attack on the right, Pillow on the left, the cavalry in reserve, and Worth to support where necessary. The details of this general programme were left to the discretion of the respective generals. Gen. Twiggs's division consisted of 2 brigades of regulars, the 1st under Col. Harney, the 2d under Col. Riley, and on the night preceding the battle he was reinforced by Shields's brigade, comprising the New York volunteers, and Illinois 8d and 4th regiments. Harney's consisted of the 1st artillery, rifle regiment, and 7th infantry; Riley's of the 4th artillery, and 2d and 3d infantry—all of the regular army. Pillow's brigade consisted exclusively of volunteers, viz.: the 1st and 2d regiments of Tennessee, and 1st and 2d of Pennsylvania, foot volunteers, a company of Kentucky volunteers, and a detachment of Tennessee horse. Twiggs decided that himself and Harney should storm the heights of Cerro Gordo, and that Shields and Riley, flanking the enemy's right, should occupy the Jalapa road. Pillow divided his command into 2 parties, under Col. Haskell supported by Col. Campbell, and Col. Wynkoop supported by Col. Roberts, who were simultaneously to storm the batteries on their left. Every thing was carried out in accordance with the general's orders. At daybreak Shields and Riley, with their brigades, Capt. Lee, of the engineers, acting as their guide, set out over a tract almost impassable, to reach the Jalapa road, and turn the enemy's flank. By the time they reached the Jalapa road the battle was raging in front, and a considerable body of Mexicans, among them Santa Anna himself, had already withdrawn to this point, with the view to secure a retreat. As Shields gained the road, a masked battery opened fire. He had barely time to give his men orders to charge and take it, which they gallantly did, when he fell, shot, but not mortally, through the lungs. The battle in front commenced by the Mexicans opening a plunging fire on the battery established by the Americans during the preceding night. Firing became general along the line. Twiggs, thinking it time to attempt the heights, confided to Harney a detachment consisting of a portion of the 1st artillery under Col. Childs, 8d infantry under Capt. Alexander, 7th infantry under Lieut. Col. Plympton, and rifles under Major Loring. Scott himself "had the pleasure to witness their style of execution, which was brilliant and decisive." Harney pushed Loring forward with the rifles, along the edge of the ravine, to engage the enemy in that quarter, while he himself advanced to the assault. His way lay over rough ground, tangled with brush

and broken by chasms. Dividing his men into 3 columns, they advanced slowly and steadily. As they approached the base of the hill, a fire of grape swept into their faces. Steadily they began the steep ascent. As they drew near the first breastwork their speed increased. A moment more, and they had reached it. Leaping down into the trenches, a hand-to-hand fight ensued. The enemy retired to the next work, higher on the hill. Once more the Americans advanced with steady step—they reached the second breastwork, and swept over it; again an interchange of volleys and the shock of steel, and ere the Mexican colors could be hauled down, the ensigns of the 1st artillery and 8d and 7th infantry floated from the summit. The general, seeing the hazard of the attacking party, sent Lieut. Col. O. F. Smith's light battalion of Worth's division to support the assault, but ere they could arrive the work was won—the key of the position was gained. Pillow had, in the mean time, made 2 assaults on the batteries on the left, both times without success. The ground over which his storming party advanced was encumbered with felled timber, in struggling through which he was exposed to a galling fire, and lost many men. Soon after the hill was carried, the batteries sent out a flag of truce, and in an hour or two the remains of the Mexican army surrendered at discretion. A large body of the enemy, estimated at 7,000 or more, with Santa Anna, who had reached the road before the division sent to intercept them, were in flight toward Jalapa, pursued by Worth and Twiggs. The programme had been carried out in all respects before 3 P. M. The spoils of the victory were 3,000 prisoners, 4,000 to 5,000 stand of arms, 43 pieces of artillery, 7 standards, together with Santa Anna's private baggage and money chest. Five generals were among the captured, namely, Pinson, Jansen, La Vega, Noreiga, and Obando; a sixth, Vazquez, having been killed. The enemy's loss is computed at from 1,000 to 1,200. The American loss in the two days amounted to 33 officers and 398 men, in all 431, of whom 63 were killed. Lieuts. Ewell, of the rifles, Nelson, Gill, and Yearwood, of the Tennessee regiment, were killed. Capt. Mason, of the rifle regiment, subsequently died of his wounds. Gen. Patterson, who was sick, left his bed to share in the fortunes of the day. Gen. Scott, deeming it unadvisable to be encumbered with baggage and prisoners, accepted the parole both of officers and men, and destroyed the stores, excepting one field train. Early next day he advanced to Jalapa.—The Mexicans themselves bear testimony to the importance of this victory. Mutual recriminations sprang up between Santa Anna and his generals. In a defence of the Mexican generalship, published by Manuel M. Jimen, in the official journal, *El Diario*, the defeat at Cerro Gordo is attributed to "inevitable misfortune, the result of the tactics of the invader. In fact,

our (Mexican) position was well chosen, it was fortified as well as circumstances permitted; its flanks were well covered, and all was foreseen that could be foreseen, in regular order, and in the usual tactics of war. True it is, that no expectation was entertained of the rare, bold, and desperate operations of the enemy, who, in the night between the 17th and 18th, broke through the woods, crossed a ravine, up to that time never crossed, and taking in reverse the position which the main body of our army occupied, surprised it in the time of action, made a general attack on all parts at once, and cut off the retreat of the infantry, artillery, and even part of the cavalry." The writer then asserts that Santa Anna *did* cover the rear of the position, "notwithstanding the old opinion, confirmed by the experience of the whole war from 1810 to 1821, that the road by which the enemy flanked us was impracticable." That movement he likens to the passage of Bonaparte over the Alps. The affair of Cerro Gordo made a great sensation throughout Mexico. Five months afterward the American flag floated over the Mexican capital.

CERRO GORDO, a N. co. of Iowa, formed since 1850, of a wild and thinly settled part of the state, named after the above-described battle; area, 652 sq. m.; pop. in 1856, 632. It is drained by Lime creek and its tributaries. The productions in 1856 were 1,025 tons of hay, 936 bushels of wheat, 1,135 of oats, 11,795 of Indian corn, 8,845 of potatoes, and 5,589 lbs. of butter.

CERTIORARI (Lat. *certus fieri*, to be made more certain, to be certified), a writ used for the purpose of removing the record in a particular case, whether civil or criminal, from an inferior to a superior tribunal, either as an auxiliary process to obtain a full return to some other process, or as a distinct mode of appeal. In American practice it is usually employed to review the proceedings of courts not of record, and of municipal corporations in certain cases, and the determinations of special tribunals, commissioners, and other officers exercising judicial powers which affect the citizen in his rights or his property, and acting in a summary way, or in a course different from that of the common law.

CERUSE (Lat. *cerusea*), a name given to the white carbonate of lead, the basis of the white lead paint. (See LEAD.)

CERVANTES SAAVEDRA, MIGUEL DE, the author of "Don Quixote," born at Alcalá de Henares, Spain, Oct. 1547, died April 23, 1616, on the same day with Shakespeare. His father Rodrigo was descended from an ancient Galician family, and his mother, Leonora de Cortinas, was a gentlewoman of refinement. Cervantes received the first rudiments of education from Lope de Hoyos, who occasionally published collections of poetry, to which his pupil, who early displayed a talent for poetical composition, contributed *Filena*, a pastoral poem,

and other compositions. *Filena* obtained some reputation, and attracted the attention of Cardinal Acquaviva, who, in 1569, invited the young poet to accompany him to Rome. But the stately monotony of ecclesiastical life was little calculated to please the ardent nature of Cervantes, and yearning for more stirring spheres of action, he joined in 1571 the Christian armament, commanded by Don John of Austria, against the Turks. In the great battle of Lepanto (Oct. 7, 1571), he received a wound, which deprived him of the use of his left hand and arm for the rest of his life; but his enthusiasm rose above all physical sufferings, and he remained in active service until 1576, when, on his way from Italy to Spain, the galley in which he sailed was captured by Algerine corsairs. He was in their power until 1580, when his relatives and friends purchased his freedom. The whole romantic account of his captivity is found in his novel, "The Captive." He was treated with great cruelty by the Moors, but his cheerfulness and philosophy seemed to increase in proportion to the severity of his trials, and excited the admiration of his fellow-prisoners. He returned to Madrid in his 34th year, covered with a prestige of glory, romance, and adventure, and here his literary career properly begins. The first work which he now produced was the pastoral romance *Galatea*, said to have been written in honor of his mistress, which showed a decided progress upon his *Filena*, and by its command of language and richness of thought, at least, raised the expectations of his friends. In 1584 he married an accomplished young lady of Esquivias, and now had more than ever to resort to his pen to supply the wants of his family, and for 8 years he wrote plays for the stage, which, however, brought him little fame and still less money. In 1588 he removed from Madrid to Seville, where he acted as an agent of a royal commissioner of the American fleet, and afterward as a collector of public and private debts. During the latter part of 1597, he was imprisoned for about 8 months at Seville, for a small sum due to the government. From 1598, when he seems to have left Seville, until the beginning of 1603, when we find him established at Valladolid, we lose all trace of him. He is said to have spent the interval in La Mancha, and to have been sent there to collect rents due to a monastery; but the debtors, instead of making payment, persecuted him and threw him into prison. Here he is said to have begun to write his "Don Quixote," laying the scene of the knight's earlier adventures in La Mancha, and making him a native of the village that treated him so ill. But no direct proof exists in support of this statement, although it is certain that he spent some time in La Mancha.—We now come to the great literary performance of Cervantes. It must here be borne in mind that the death of Philip II. took place in 1598, and the relief which the end of his despotic rule brought to Spain was

felt also in the world of letters. Cervantes could now give free vent to his opinions; and the general tenor of his life, as well as the influences of the age, enabled him to perform the task with remarkable success. His occupation at Seville and La Mancha had given him new opportunities of observation. In his youth at Rome, he had observed in Cardinal Acquaviva's house the character of high life, and there, and subsequently in Spain, he was constantly brought in contact with persons eminent in church, state, and literature. With the camp and Moorish life he was thoroughly familiar, from his service in the navy and his captivity in Algiers. The mysteries of the stage, the characteristics of actors, were known to him from his career as dramatist. His frequent journeys had brought him into close contact with persons of all classes. With such a world of experience, with an inexhaustible stock of humor in his disposition, and with a love of the ideal and the heroic in his heart, this laughing philosopher, acute observer, and at the same time classic and polished writer, produced, in the full maturity of his genius, after having passed the 50th year of his age, his imperishable "Don Quixote." The first part was published at Madrid in 1605. In this work Cervantes hit the vulnerable point of his age. The common sense of the world had long rebelled against the mummeries of knight-errantry, and the foolish books that still spoke of a chivalry of which, in reality, not a vestige remained. People who had smiled when the absurdity presented itself to their minds, burst out in laughter when Cervantes gave it the finishing stroke. The laughter became universal, and it is still going on, constituting a perennial source of pleasure, blended with a tender sympathy for Don Quixote, whose sublime intentions we are bound to admire, while his ridiculous actions are a perpetual entertainment. Grave moralists may object to the general hilarity, and argue that to ridicule performances which, after all, resulted from an exalted sentiment of heroism, self-sacrifice, and unselfishness, is ridiculing goodness itself. But philosophers might as well attempt to stop the fall of the waters of Niagara, upon the ground of the impropriety in the noise of the cataract. Mankind began to be tired of the hypocrisy, sentimentality, sensuality, and folly of the books of chivalry. A new world had been discovered by Columbus. A new interpretation of Christianity had been set forth by Luther. Dante, Petrarch, Ariosto, and Tasso had published their immortal poems. The reign of Elizabeth had given an impetus to English progress. The advent of Shakespeare had taken place. Philip II., the enemy of the new, and the champion of the old systems, had just gone to his grave. Even old Spain yearned for some free-spoken word which would end the weary spectacle of an effete literature. Cervantes uttered that word. Its name was Don Quixote. One day Philip III.

observed from his balcony a student on the opposite banks of the Manzanares convulsed with laughter over a book. "He must either be crazy," said the king, "or he must be reading the history of Don Quixote." This happened in 1606, after the court had removed from Valladolid to the capital. Cervantes wrote the first part of the book probably during his residence at Valladolid, where, after his return from Seville and La Mancha, he had taken up his residence, as he alleged, for purposes of business. Although he received frequent visits from persons connected with the court and with the literary world, he was living with his wife, his 2 sisters, his niece, and a single female domestic, on the 4th floor of a mean-looking house, and his pecuniary embarrassments were great. After his arrival at Madrid, while the publication of the first part of his "Don Quixote," and its unprecedented success (80,000 copies being sold on its first appearance, and translations soon appearing in almost all foreign languages), drew upon him the anathemas and the active hostilities of those who resented the satire of his novel, he quietly occupied himself with the publication of his *Novelas Ejemplares*, most of which had been written many years before, and of which he had already given a specimen in the story of the "Curious Impertinent," introduced in Don Quixote. In 1614 he published the *Viaje al Parnaso*, a satirical work, which gives a picture of the state of Spanish literature in his time, in which he describes himself, but without bitterness, as the oldest and poorest, the naked Adam of Spanish poets. During the same year, while he was preparing for the press the 2d part of "Don Quixote," a continuation of the same story was attempted by a bungling plagiarist of Tarragona, who assumed the name of Avellanada. This work contained invectives against Cervantes, and was probably published at the instigation of his enemies. The 2d part of "Don Quixote" made its appearance in the beginning of 1615, with a dedication to the conde de Lemos, expressive of gratitude for kindnesses extended to him by the count, but at the same time full of self-respect and dignity. It was received with the same universal demonstrations of enthusiasm which had greeted the 1st part. Cervantes had at last gained the object of his ambition. He had the admiration of Europe, while even in Spain, as Lope de Vega was dead, there was no one to divide with him the literary empire. The sale of the "Don Quixote" also relieved his pecuniary wants to a great extent. But his health began to fail, and he had a presentiment of the close of his earthly career, indicated in the preface of his *Periles y Sigismunda*, a serious romance modeled after the "Theagenes and Charicles" of Heliodorus, which he prepared for the press at the beginning of 1616, though it was not published until after his death in 1617 by his widow. On April 19, he dictated to his wife the following words addressed to his friend

Lemos, to whom he dedicated the work, and which show that to the last the qualities of the soldier, poet, and philosopher were admirably combined in his generous and genial nature: "I have my feet already in the stirrup. I may use this expression since I feel that with one foot I stand in the grave. Yesterday I received extreme unction; to-day I resume my pen. The time is short, my sufferings grow more and more painful; my hopes grow fainter and fainter; yet I should be happy to see you before I die." Four days afterward he died.—Like Camoëns and Tasso, Cervantes was of unusually fair complexion; his eyes were bright blue; his hair auburn. His countenance, handsome in youth, was spirited throughout his life. His manners were cheerful. He was beloved and respected in every relation of life. He possessed himself the magnanimous disposition which he ascribes to his Don Quixote; but while in the knight the sentiment degenerates into folly, it bloomed in the heart of Cervantes into a genial, witty, humorous philosophy of life, which made him forbearing toward his enemies and amiable to his friends. Of his *Novelas Ejemplares*, *La Gitanilla* is the most interesting. Of his dramatic compositions, his tragedy *La Numancia*, founded on the siege of that city, contains eloquent passages, but is written without any regard to the Aristotelian unities. His comedy *El Trato de Argel* gives a picture of Algerine life and manners, and is not destitute of interest. As for his miscellaneous literary productions, it is needless to say that, whatever their merit, they are almost forgotten in the triumph achieved by "Don Quixote." Yet this great man was buried without any kind of distinction in the convent of the nuns of Trinity, Calle del Humilladero. A common tombstone marks the spot to which his ashes were removed at a subsequent period; nor was any monument raised to his memory until 1885, when a bronze statue of him, larger than life, cast at Rome by Sola of Barcelona, was placed in the Plaza del Estamento at Madrid; and a small bust was placed in 1884, by one of the admirers of his genius, over the door of the house in the Calle de los Francos where he died. The most splendid editions of Don Quixote are those which appeared in 1780 at Madrid, in 4 vols., and at Paris in 1827, (Didot, 18mo.) One of the best is the Madrid academy's 4th edition, published in 5 vols. in 1819, with a biographical sketch of Cervantes by Navarrete. Other Spanish biographers are Mayons y Oiscar and Pellicer. The edition of 1888-'89, in 6 vols., has a very complete commentary by Diego Clemencin. The pocket edition of Leipsic, 6 vols., 1806-'07, also deserves notice. His complete works, excepting his comedies, appeared at Madrid in 16 vols., 1808-'5, and also another edition in 1811, which, however, does not include his *Viage al Parnaso*. Arrieta, of Paris, published in 1826-'32 a selection of his works, in 10 vols. Baudry's edition, published at Paris in 1840-'41, gives his complete works. Ros-

coe's "Life and Writings of Cervantes" appeared in London in 1839. The most eminent German translators of "Don Quixote" are Tieck, Bertuch, and Soltau. The best English version is that of Motteux, with notes and additions by Lockhart.

CERVETRI (the *Agylla* of the Pelasgi, and the *Cære* of the Etruscans), a village of Italy, in the Pontifical States, Comarca di Roma. Cære was one of the 12 great cities of the Etrurian confederation, and is celebrated by Virgil as the capital of Mezentius. Some remains of its walls and tombs are still seen in the neighborhood of Cervetri, which occupies the site of the acropolis of the ancient city. It has a deserted palace of the Ruspoli family, on whose eldest son it confers the title of prince of Cervetri. The most remarkable of the tombs recently discovered is that of the Tarquins, found in 1846, containing 2 chambers, one of which is called by the peasantry the *Grotta delle Iscrizioni*, from the number of its inscriptions.

CERVIA, a town on the Adriatic, in the Pontifical States, legation of Forlì; pop. about 4,000. It is situated in the vicinity of marshes which contain the most important salt works in the country.

CERVIN, MONT (It. *Monte Sileio*; Ger. *Matterhorn*), a mountain of the Pennine Alps, between the Valais in Switzerland and the Val d'Aosta in Piedmont, celebrated for its matchless picturesqueness and beauty; elevation about 15,000 feet. At a height of about 11,000 feet is the famous pass of Mont Cervin (Fr. *St. Théodule*; Ger. *Matterjoch*), traversed in summer by mules and horses. Prof. Forbes describes Mont Cervin as the most striking object he had seen, "an inaccessible obelisk of rock, not 1,000 feet lower than Mont Blanc."

CESARE, GIUSEPPE, cavaliere di, an Italian historian, born in 1783, in Naples, died there April 15, 1856. He was at the head of the custom-house of his native city until 1827, when he was dismissed for political reasons. When the constitutional party came into power in 1848, he was appointed governor of the province of Bari, but tendered his resignation as soon as absolutism was again triumphant. He subsequently devoted himself to literary labors, and wrote *Arrigo di Abbate* and *Lettere Romane*, historical novels. But his most important production is his *Storia di Manfredi, re di Sicilia e di Puglia*, which appeared in 1837, and obtained a wide popularity, not only on account of its literary merits, but also in consequence of the efforts of the author to clear Manfred's memory from the imputations of previous writers. For several years he edited a periodical entitled *Il Progresso*; and in Mancini's *Biblioteca di scienze morali, legislative, ed economiche*, he published an able paper on the philosophy of history. He is also the author of a history of the Lombard league.

CESAROTTI, MELOHIORE, an Italian poet, born in Padua, May 15, 1780, died Nov. 1808. He officiated as professor in the university of

Padua, and gained a high literary reputation by his translation of "Ossian" into Italian blank verse (last edition, Milan, 1826). He also produced a free version of the *Iliad* (1795), a translation of Plutarch (1768), a great number of academical essays, poems, letters, included in his *Opere scelte* (Milan, 1820), and a remarkable philological work, *Saggio sulla filosofia della lingua*. A complete edition of his works appeared in Pisa in 1809, in 42 vols. 8vo.

OESENA, a city in the Papal States, in the legation of Forlì, on the Æmilian way, and the right bank of the river Savio; pop. about 14,000. It has a cathedral, a large town hall, a fountain, and a colossal statue of Pope Pius VII., who was born in this town. There is also the Capuchin church, containing a fine painting by Guercino, a library founded by the duke Malatesta in 1452, rich in MSS., and at a short distance the Benedictine monastery, long the residence of Pius VII.

OESPEDES, PABLO DE, a Spanish artist and author, born in Cordova in 1538, died there in 1608. He carefully studied the works of Michel Angelo and the great Italian colorists, and during the pontificate of Gregory XIII. acquired distinction as a painter. About the year 1577 he returned to Cordova, where he passed the remainder of his life. He held a prebend in the cathedral, but spent his vacations at Seville, where he established a museum of ancient art. Cespedes was one of the best colorists in Spain, and a successful imitator of Correggio. He was an accomplished scholar in ancient and modern languages, and left a poem on painting and some essays on art. He had a considerable reputation also as a sculptor and architect.

OSSION, an English law term importing the avoidance of a benefice or preferment by the acceptance of a second which may not be held with the first. The incumbent, however, may be relieved by dispensation from the operation of the rule.—In politics, cession is the yielding up of territory to another power. The knights of Malta ceded their island to the French when Bonaparte requested them to do so. French colonies have been ceded to the English at various times.

OESTUS (Gr. *κεστος*, stitched), a band or tie of any kind, particularly applied to the embroidered zone or girdle of Venus, famed for its power of awakening love. By this, according to Homer, Venus captivated Mars, and Juno borrowed it in order to win the affections of Jupiter. The bridal girdle, which was worn by the bride, and unloosed by the husband after the marriage ceremony, was termed a cestus.

OETTE, a fortified French seaport town, and capital of a commune of the same name, in the department of Hérault, built on the slope and at the foot of a hill (anc. *Mons Sotius*), on a tongue of land between the lake of Thau and the Mediterranean, which are united by a canal that traverses the town and terminates in the harbor; pop. 19,124. Next to Marseilles, Cette is the most important port in southern France.

This is in a great measure owing to its being an outlet in the centre of the southern wine districts, and to the *canal du Midi* which connects it with Bordeaux, and the canals *des Baux* and *de Beaucaire* and the Rhône, which connect it with Lyons. The great northern railway connects Cette with Bordeaux and Toulouse, and the Lyons-Mediterranean railway with Montpellier, Nîmes, and Tarascon. There are steamers to Algiers, Marseilles, Cannes, and Nice. The town owes its rise to the mole, which was commenced in 1666, and which shelters the harbor on the S. At its end on the left of the entrance to the harbor is Fort St. Louis, which is surmounted by a lighthouse. A breakwater has been constructed in front of the harbor, to prevent the accumulation of mud, and the other side of the harbor is formed by a pier, on the extremity of which rises Fort St. Pierre, completing, with a citadel on the opposite cliff, the defences of the port. A new dock has recently been added to the harbor, which can hold 400 vessels. Cette owns 155 vessels and 12 steamers. The number of vessels engaged in the foreign trade, which entered and left Cette in 1858, was 1,544, tonnage 168,465; and the coasting trade engaged 2,325 vessels, tonnage 215,203. There is an extensive manufacture of so-called Madeira wines, produced by the mixture of French and Spanish wine and brandy. The total annual exports of wine comprise about 40,000 casks, and of brandy, 5,000. The salt-works in the neighborhood are the most important in the country, and yield annually above 500,000 cwt. of pure salt. The fisheries of sardines (which are salted here), of cod, and oysters, employ about 400 vessels. There are also glass-works, 4 extensive ship-building yards, and an establishment for the production of sulphates of soda, magnesia, and potash by evaporation from sea-water. Casks, corals, soap, sirups, grape sugar, and perfumes are made there. The town possesses a tribunal of commerce, various courts of justice, an imperial hydropathic school, a communal college, a public library, a theatre, and is a favorite resort for sea bathing. It was laid out in 1666 after Colbert's designs, at a great cost, and the works of the harbor were executed by M. Riquet, the engineer of the *canal du Midi*. In 1710 a small British force from the fleet of Commodore Norris, designing to effect a junction with the insurgents of the Cévennes, took possession of Cette, but was driven back after a few days. The duke of Angoulême embarked here for Barcelona, April 16, 1815.

OETTI, GIOVANNI, an Italian who contributed much to spread the knowledge of Russian literature in Italy, by translating Karamsin's *esquisse* of Catharine II. (Bologna, 1814), and other writings of the same author, into Italian. He was a native of Lugano, where he became colonel in the army, and spent the latter part of his life in Bologna, where he died in 1817.

OETTIGNE, or ZETTINJE, also ZETTINJE and IZETTINJE, the capital of Montenegro, in European Turkey, in the district or nahia of Kamm-

ska, about 8 hours' journey from the Austrian seaport Cattaro, is a mountain village, with about 20 well-built houses. It is, however, the only fortified locality in the country, has a convent which resembles a castle, a school since 1841, and on a plain below the village is a new government house, where the public affairs of Montenegro are conducted, and where the prince or vladika resides. Gunpowder is manufactured here, and some trade is carried on with Dalmatia.

CETUS, the whale, a large constellation of the S. hemisphere containing 97 stars, and said to represent the monster which was going to devour Andromeda. Its brightest star, named Menkar, comes on the meridian at 8 o'clock in the beginning of January.

CEUTA, or SEBTA, the Botany Bay of Spain, a town and fortress, forming part of the province of Cadiz, situated on the N. coast of Fez, in the empire of Morocco, at the E. entrance of the strait of Gibraltar, where a small peninsula juts out in a N. N. E. direction exactly opposite Gibraltar, being joined to the mainland of Africa by a narrow but well fortified isthmus, on which the town is built. The N. E. of the town is almost entirely occupied by the Monte del Hacho (the anc. *Abyla*), which is a spur of the range of mountains called Jebel Zatout (anc. *Septem Fratres*). On the highest part of the mountain stands the citadel of Ceuta. The garrison consists of 5,000 men, and the population, which has singularly diminished during the last 50 years, was not above 2,122 in 1852. The town is well built, gives title to a bishop, who is suffragan of the archbishop of Seville, and is the seat of a royal court of justice, and the chief of the Spanish presidios or convict establishments on the African coast. The others, comprising in all an area of 32 sq. m., and a convict population of about 11,000, are under the charge of the governor of Ceuta. The town is clean and paved in a mosaic pattern, has a cathedral, several convents, and a house of mercy founded in 1498, but little trade, the unsafe harbor militating against commercial activity.—Ceuta was a town of Mauritania Tingitana, under the Romans. In 1415 John I., king of Portugal, wrested it from the Moors, who in their invasions of Spain first set out from Ceuta. In 1580 it passed with Portugal to Philip II. of Spain by conquest, and was formally ceded by Portugal to Spain by the treaty of Lisbon of 1668. Afterward it was unsuccessfully besieged by troops from Morocco. At the beginning of this century it was held for a short time by the English.

CEVA (anc. *Ceba*), a Piedmontese town, at the confluence of the Cevetta with the Tanaro, in the province and 10 m. E. of Mondovì; pop. about 4,500. It has a church and 8 convents, and the chief feature of the town is a rock on which are the remains of a citadel formerly used as a state prison. The inhabitants are employed chiefly in cultivating the vine, in manufacturing silk, and in iron works. The celebrated Piedmontese cheese, called

*Robiole*, is made here, and was renowned even under the Romans, and praised by Pliny. Coals are found in the neighborhood, and truffles abound. It was formerly the capital of the marquisate of Ceva, and was several times besieged and conquered by the French and Spaniards. It was taken by the Piedmontese in 1796, and successfully resisted an attack of the French in 1799. Its principal fortifications were destroyed in 1800, and have not been rebuilt.

CEVA, TOMMASO, an Italian mathematician and poet, born Dec. 20, 1648, in Milan, died Feb. 8, 1786. He was admitted into the order of Jesuits in 1668, and spent his life as an instructor in various colleges. His more important mathematical works had reference to angles, for the trisection of which he invented a mechanical instrument. He wrote several biographies in Italian, and many poems in Latin and Italian, 2 of which, entitled *Philosophia nova-antiqua* and *Puer Jesus*, are still admired.

CEVALLOS, PEDRO, a Spanish diplomatist, born in 1764 at Santander, died about 1838 at Bayonne. In the difficulties between Charles IV. and Ferdinand he joined the latter, and accompanied him to Bayonne, where he was eyewitness of the various intrigues which ended in the occupation of Spain by the French. Joseph invited him to Madrid; he accepted the invitation, but soon declared against the French, and went to London to forward the interests of the junta. In 1808 he published a celebrated paper on Spanish affairs, especially on the proceedings in Bayonne, which contributed powerfully to excite the public mind against Napoleon's aggressive policy. He took an active part in the civil service of the liberal cause during the war of independence, and, on the restoration of Ferdinand, officiated for a while as his secretary of state; but losing this office by opposing Ferdinand's marriage to a Portuguese princess, he was sent as ambassador to Naples, and afterward to Vienna, and in 1820 was entirely discarded by the government and obliged to retire into private life.

CÉVENNES, a mountain range of France, beginning at the canal of Languedoc, running N. E. to near the central canal, and separating the basins of the Garonne and the Loire from those of the Saône and the Rhône. It extends over nearly 400 m., and is divided into the S. and N. Cévennes. The former, which contain extinct volcanoes, assume successively the names of Black, Espinouse, Garrigues, and Lozère mountains, and form the group of Gévaudan, several branches of which diverge in various directions; the most important, running N., connects with the cluster of mountains of volcanic origin known as the mountains of Auvergne. The highest points of the Cévennes are Mount Mezin, 5,918 feet, and Mount Lozère, 4,870 feet. The N. are of less importance, and are scarcely more than hills, under the names of Vivarais, Lyonnais, Forez, and Charolais mountains. They connect with the Vosges, through the hills of Côte d'Or, the plateau of Langres, and the Fau-

cilles mountains. Several rivers rise in this chain, the most important of which flow N. W. or W. to the Atlantic ocean, such as the Loire, the Allier, the Lot, &c. The Hérault and the Gard, which run in an opposite direction and empty into the Rhône, are but short streams.—Cévennes was also formerly the name of a French province, which formed the N. E. part of Languedoc, and was divided into Gévaudan, Velay, Vivarais, and Cévennes proper, the respective chief towns of which were Mende, Le Puy, Viviers, and Alais. It is now included in the departments of Haute-Loire, Lozère, Ardèche, Aveyron, and Gard.

CEYLON, an island in the Indian ocean, between 50 and 60 m. from the S. extremity of the province of Coromandel, the southernmost province of Hindostan. It is separated from the mainland by the gulf of Manaar. Its limits extend between lat.  $5^{\circ} 54'$  and  $9^{\circ} 50'$  N., and long.  $79^{\circ} 50'$  and  $82^{\circ} 10'$  E. It is oval, nearly pear-shaped, extending in length N. and S.; is 270 m. long; greatest breadth, 145 m.; average breadth about 100 m.; area, 24,664 sq. m. Pop. 1,628,000. It has on the N. the gulf of Manaar and Palk's strait; on the S. and S. W., the Indian ocean; and on the E. the bay of Bengal. On the N. W. its shores are low and sandy, and a succession of bold rocks, stretching across the gulf of Manaar, together with the holy island of Ramisseram, nearly connect it with the mainland. From its position and geological character, Ceylon indeed appears to have been once part of the mainland. The straits which now divide the two are navigable only for small vessels. The one nearest the Malabar coast has been widened and deepened by the British government, and is now passed by vessels of 800 tons, thus much facilitating the coasting trade, and materially shortening the voyages between the Malabar and Coromandel coasts. The W. and S. coasts are low, much indented, and lined with cocoanut and other palms. Numerous small harbors are found along this shore. The E. coast, from Point de Galle to Trincomalee, is an arid but bold and precipitous shore. On these sides the line of coast is of varying depth, from 80 to 80 m., surrounding the mountain ranges which form the centre of the island. The northern shore, from Calpentyne to Batticaloa, is a vast arid and sandy plain, teeming with swamps and jungle. It is on this coast that the pearl oyster banks are found; and on occasions when the fisheries are opened, vast but temporary towns are suddenly formed, and as suddenly abandoned, in parts of this great coast plain, by fishers for and speculators in pearls. The island possesses 2 excellent harbors, Trincomalee on the N. E., and Point de Galle on the S. coast. Colombo, the capital, has but an open roadstead; but on account of its superior facilities, it monopolizes the shipping business of the island. There are several smaller harbors, suitable for coasting vessels. The roads of Colombo afford safe but stormy an-

chorage; but at particular seasons (especially June and October), communication with the shore is difficult and hazardous. Other harbors are Batticaloa, Matura, and Calcutra on the S. and E., and Negumbo, Ohilora, Calpentyne, Manaar, and Point Pedro on the W. coast. There are numerous small islets along the coasts, and 2 considerable peninsulas, Jafnapatam on the N., and Calpentyne on the W.—The mountain ranges of Ceylon rise in the centre of the S. or broader part of the island. The general direction of the chief range is from N. to S.; but minor ranges spur off in various directions. The average elevation is about 2,000 feet; but several peaks or summits rise to a much greater height. Pedro-tallagalla, an abruptly rising peak, is the highest on the island, being 8,280 feet high; Kirrigal Potta is 7,810; Totapella, 7,720; and Adam's peak, over 6,500 feet high. The greater part of the fertile and highly cultivated hillside country ranges between 2,000 and 4,000 feet high. The plain of Newera Ellia, the sanatorium of the island, is at an elevation of 6,210 feet. Candy, the capital of the central province, and former capital of the long independent kingdom, is 1,678 feet above the sea level. Adam's peak, before mentioned, though not the highest, is the most prominent and remarkable summit on the island. It is much resorted to by Mohammedan and Buddhist pilgrims, being one of their holy places. They have a tradition, firmly believed, among others, that Adam, on leaving Paradise, rested with one foot on this summit, and with the other upon the island of Ramisseram, using the bowlders which obstruct the Manaar passage as stepping stones on his way from the island to the mainland. At a point near the summit of the peak, very difficult of access, and attained by a series of stone steps, there is a rock, on which is the rude imprint of a vast human foot,  $5\frac{1}{2}$  feet by  $2\frac{1}{2}$  in breadth. This impress is carefully guarded by attendant priests, and protected from the weather. *Semenella* is the Cingalese name of this peak. It is in lat.  $7^{\circ}$  N., and long.  $80^{\circ} 40'$  E., and 46 m. E. S. E. of Colombo.—The island has numerous small rivers and brooks, but no considerable streams. Few are navigable for more than a few miles from their mouths. The chief is the Mahavilly Gunga, which is 200 m. long. The next, the Kalani Gunga, has its source at the foot of Adam's peak, and falls into the sea near Colombo. There are no lakes of importance in the interior, but several extensive lagoons on the E. coast. Some of these are connected by canals and natural streams, and are used for purposes of commerce. Artificial lakes, the relics of native undertakings of former days, are found. One is still in good condition, and serves to irrigate a large district between Candy and Trincomalee. It is 20 m. in circumference, and its waters are imprisoned in the valley which contains them by a vast embankment 60 feet wide at top. Another, now in ruins, appears to have been kept in bounds by

a wall of masonry 12 m. long and 160 feet thick. These collections of water were formed by damming the natural outlets of the mountain streams at the mouths of extensive valleys. They were of great service to the country when more densely populated and thoroughly cultivated than now.—A belt of gray and black sandstone and coral formations nearly encompasses the island. The rocks of the interior are mostly primitive, consisting of granite, gneiss, large veins of quartz, &c. Limestone occurs only in Jaffnapatam and the northern districts. The surface soil is mostly sandy. The cinnamon soil near Colombo is perfectly white, and consists of pure quartz. Ores of iron, lead, tin, and manganese are found in the interior. Plumbago is found of excellent quality, and is a considerable article of export. Quicksilver mines exist, and were formerly worked by the Dutch. Various gems are found, and salt beds are worked to advantage. The most valuable gems are the ruby, sapphire, amethyst, cat's-eye, and carbuncle. Cinnamon stones and garnets exist in great plenty. The plumbago mines, of which there are 14, are worked by natives. The mineral is obtained at depths of from 8 to 80 feet, and in rich seams. In 1851 the exports of plumbago amounted to 31,186 cwt., valued at \$23,000. Iron ore is worked up by the Cingalese in a rude way, but with considerable success, the iron being equal in temper to the best Swedish. Salt is a monopoly of the government.—The climate of Ceylon differs little from that of the neighboring part of India. The island is, however, much healthier than any portion of southern India. The N. E. and S. W. monsoons mark the changes of the seasons. The changes, which occur on the sea-coasts in May or June and October or November, bring with them heavy thunder storms. The highest temperature at Colombo is about 87°; on the coffee estates it is stated at between 56° and 80°; and in the high valley of Newera Ellia, during January and February, the mercury falls as low as 81°. The prevailing diseases of the country are cholera, dysentery, and fevers. Elephantiasis is a disease peculiar to the natives. The beri-beri (*hydrops asthmaticus*) is another disease nearly peculiar to the island.—The zoology of Ceylon is much the same as that of the adjoining mainland. The elephant, which stands at the head of the animal list, is of a less tractable or useful species than those of India and Africa. They exist in great numbers in the interior, and commit numerous ravages upon the native fields. They are frequently trapped in vast kraals, into which they are driven by a great assemblage of natives. Of late years, English hunters have killed great numbers of them for sport and for their tusks. Oxen of small size and buffaloes are used as draught animals. There are 4 species of deer, and a species of the Indian musk, a great variety of monkeys, as well as the hare, squirrel, porcupine, wild boar, bear, and one species of ant-eater. Of birds there

are all the varieties common to the tropics. The *hirundo eculenta* is stated to build its nests on the coast; but the nests do not form an article of commerce. There are several varieties of serpents, one of which grows to the length of between 20 and 80 feet. Crocodiles are found in the rivers, scorpions and huge spiders in the houses, and a flying lizard in the woods. Fish are of numerous varieties, and in great abundance, some of excellent quality for eating.—The vegetable products are both numerous and valuable. There are 416 varieties known of valuable woods, of which 83 are used for house, furniture, and ship building. Among these is the satinwood and ebony. The upas tree has been found in the interior. The cocoanut palm is altogether the most useful tree to the natives. It grows readily without cultivation, is not limited to one soil, and every part of it is made use of by the Cingalese owner. The fruit, when green, supplies food and drink; when dry, oil; the sap is made into toddy and arrack; the fibrous husk makes ropes, nets, and matting; the nutshells form household utensils; the plaited leaves serve the same purpose, and also furnish thatch for the cottage; the dried flower-stalks serve as torches, and the large leaves as garden fences. The trees bear from 50 to 100 nuts per annum, and grow so near the water's edge that the waves wash their roots. There are several other varieties of palms, one of which furnishes, in its wide-spreading leaves, the umbrella, which is a notable article of Cingalese use. The fruit of the betel palm is exported to the amount of \$60,000 per annum. Beside native fruits, which are not numerous, various European and Indian fruits have been introduced latterly under the auspices of English planters, who have formed an agricultural society. Cinnamon, which grows wild in the forests, is cultivated to a large extent, arrives at a high state of perfection, and has long been a chief article of export. Its cultivation was formerly a government monopoly, but was thrown open to the public in 1833; cultivators paid, however, for many years, 8s. per lb. export duty; this is now abolished. When growing wild, the cinnamon plant attains a height of 20 to 30 feet; cultivated, it is not allowed to grow so thriftily, the young shoots giving the finest bark. Coffee flourishes as readily as cinnamon, and its cultivation has in many places taken the place of the latter. Rice, cotton, tobacco, pepper, &c., are also cultivated. Bread-fruit flourishes to a remarkable degree. The sugar-cane does not succeed. There are 2 rice harvests annually, Jan. to March and Aug. to Oct.—Ceylon was known to the Greeks and Romans under the name of Taprobana. Pliny relates that Onesicritus, a captain of Alexander the Great, first circumnavigated it, and thus discovered it to be an island. Before this it was supposed to stretch indefinitely south. The Cingalese have a legend that the island was once much larger than at present; and this seems to receive confirmation in the fact recorded by a Roman



navigator who visited the island some time before the Christian era, that the constellation of the Great Bear was not visible from that part of it he visited. This would tend to show that the land stretched at that time much further south than at present. Serendib was a former name of the island. *Zeylan*, of which Ceylon is a corruption, is said to be from *Zinbal*, Hindostanes for lions. The Cingalese annals profess to contain a historical record of events for 24 centuries back. These, and existing ruins, show that it was thickly settled by a people of energy and considerable civilization, even at that remote period. Hyara, an Indian conqueror in 543 B. C., is supposed to have introduced caste. It was visited by traders at an early period, by Marco Polo in the 13th, and by Sir John Mandeville in the 14th century. Don Lorenzo Almeida, a Portuguese, visited it in 1505, and was hired, by an annual payment of cinnamon, to defend its shores against Arabian pirates. He found it divided into 7 separate kingdoms. Through Almeida the Portuguese obtained footing upon the island, and held it against all comers, and against many struggles of the natives, who grew tired of their control, for 153 years. Capt. Knox, an Englishman, fell into the hands of the Candians in the 17th century, and in 1681 published an interesting account of his 20 years' captivity. In 1688 the Dutch expelled the Portuguese. In 1795 the British expelled the Dutch. The island at first belonged to the East India company, but in 1802 reverted to the British crown. In 1815 the Candians, whose territory occupied the entire interior of the island, and who were independent of foreign rule, incautiously called upon the British to depose their tyrannous prince. This proved a convenient opportunity for the annexation of this valuable territory. In 1817 an extensive rebellion was successfully put down. In 1843 and 1848 there were minor attempts at rebellion.—The population (exclusive of Europeans) consists of 4 classes: the native Cingalese; Moors, who are found in all parts of the island; Veddahs, a savage, perhaps aboriginal race, inhabiting the mountain fastnesses, and devoid of civilization; and the Malabar and other Hindoos, who immigrate from the neighboring continent. Of all these, the Candian Ceylonese are the finest. The religion of Buddha is the dominant native creed. There are 4 great political castes, and 24 minor ones. The Cingalese are singularly mild and inoffensive in their manners, and make very poor warriors. Their genius seems to be for agriculture and for peace. Christianity was introduced in the 6th century, but died out, leaving no trace. St. Francis Xavier preached again in the 16th century. Since then the different possessors of the island have labored with more or less well directed zeal to spread what each thought to be Christianity. The English established missions in 1804; the Americans in 1815. They have labored hand in hand, and their labors have been

well rewarded. They have contributed most largely toward the establishment of the present prosperous educational system, by which, according to last returns, 1 in 98 of the entire native population was receiving a liberal education under the auspices of American or European teachers. The government makes money grants to aid the various missionary schools, beside which there are about 90 other schools supported by the government. The most important government institutions are the Colombo academy, consisting of an upper and lower school, and a normal training school in the same city.—The government consists of a governor (in 1858, Sir H. G. Ward, who was appointed in 1855) and 5 councilors. The island is divided into 5 provinces, and these into districts. The ecclesiastical government consists of a bishop, archdeacon, and numerous chaplains. The chief towns are Colombo, Trincomalee, Candy, Point de Galle, Jaffna, and Kariakalle. In 1852 the revenue of the island was £411,806, and the expenditure £412,871. The pearl fishery was long a source of annual income alike to inhabitants and government. After lying untouched from 1837 to 1855, the banks, which are situated off the northern parts of the coast, seem again likely to yield profitable returns. Rice is the staple grain. Of coffee, the cultivation of which dates only from 1884, the yield in 1884 was 500,000 cwt. The average yield per acre is from 6 to 9 cwt. Cinnamon is exported to the amount of about 5,100 bales per annum. The yield varies greatly with the mode of cultivation, ranging between 50 and 500 lbs. per acre. A bale is 100 lbs. The planting of cocoanuts, for the sake of their oil, has of late been successfully prosecuted by Europeans. In 1852, 4,000 looms were engaged in weaving table cloths, handkerchiefs, and napkins. The salt manufactured from salt marshes yields the government a revenue of £31,222. Exports of cocoanut oil, 407,960 galls.; of coir rope, 40,000 cwt. Of exports,  $\frac{1}{2}$  are to Great Britain; of imports,  $\frac{1}{2}$  from Great Britain, the remainder from India. British goods imported are cotton manufactures, glassware, hardware, metals, tools, beer, wine, &c. The foreign trade, which in 1886 engaged only 2,500 vessels, engaged in 1857 over 6,000 inward and outward bound vessels. The coasting trade is carried on by about 56 brigs (built in Ceylon), tonnage about 3,200, and by about 560 *dhomies* (a craft peculiar to the island), tonnage about 25,000. The banking business is conducted by branches of the oriental bank of London, and the mercantile bank of Bombay, the former establishment possessing the privilege of issuing notes of 10s. and upward. About 40,000 Malabar coolies, who annually emigrate in large numbers from the coast of India to Ceylon, are employed on coffee estates. The superintendence of the plantations, however, is entirely in the hands of Europeans. The foreign trade of Ceylon is carried on mainly by European firms, the native houses confining their transactions to British

India, and the small native dealers, called chitters, to their connections with Madras and Bombay merchants. The value of exports in 1857 was £2,250,000, and of imports nearly £2,000,000. Adding specie, the aggregate value of the whole trade of Ceylon in 1857 was £5,695,124. The large imports from Australia consisted almost wholly of specie, the Australian gold coinage having by a recent enactment been made current in Ceylon. The imports from British India consisted of grain to the extent of £500,000, and that of specie largely exceeded that amount. A larger proportion of native coffee having been shipped direct to France in 1857, the balance of trade was against that country. In 1858, however, the experiment of direct coffee exports to France has not been repeated to the same extent. To Holland and Australia the exports were extensive. The following table gives the exports of the coffee crop of 1857-'8:

EXPORTS FROM CEYLON FROM OCT. 1, 1857, TO JUNE 24, 1858.

	Plantation Coffee, cwt.	Native Coffee, cwt.	Total cwt.
London.....	200,264	60,551	260,815
Liverpool.....	8,029	3,291	11,320
France.....	8,671	44,208	47,874
Falmouth.....	5,342	10,078	15,915
Rotterdam.....	29,749	8,296	38,075
Gibraltar.....	5,238	2,222	7,575
Trieste.....	5,643	1,307	6,950
Australia.....	6,171	8,438	9,657
Mediterranean.....	2,001	1,780	3,781
Moulmein.....	81	88	64
Calcutta.....	.....	1,250	1,250
Mauritius.....	.....	8,329	8,329
Hamburg.....	.....	1,129	1,129
Various countries.....	.....	182	182
Total.....	326,684	186,223	492,916

The total produce of the season 1857-'8 is estimated at 860,000 cwt. plantation coffee; 165,000 cwt. native coffee; total, 525,000 cwt.; showing an increase upon the preceding year of 14,000 cwt. in the native coffee, and a decrease of 4,000 cwt. in the plantation coffee.—Books on Ceylon have been published by Knox, in 1657, new edition, 1807; by Perceval, in 1803; by Cordiner, in 1807; by Davy, in 1821; by Forbes, in 1840; by Selkirk, in 1844; by Knighton, in 1845; by Pridham, in 1849; by Sirt, in 1850; and by Sir John Barrow, in 1857 ("Ceylon, Past and Present"). Among the various newspapers published in Ceylon, the "Ceylon Observer" holds a prominent position.

CHABERT, J. XAVIER, called the fire king, a Frenchman who excited attention in London in 1829, and subsequently in New York, where he still resides, by swallowing 10 to 20 grains of phosphorus, a teaspoonful of prussic acid, and also exposing himself to the heat of an oven, with the thermometer standing at 880°; his pulse was then beating 168 in a minute. According to his statement, the antidote which he used was extremely simple, but he would not sell his secret, notwithstanding the tempting offers made to him by London physicians who witnessed his experiments.

CHABERT, JOSEPH BERNARD, marquis of, a

French navigator and astronomer, born in Toulon, Feb. 28, 1724, died in Paris, Dec. 1, 1805. He was an enthusiastic topographer, and planned and executed maps of the shores of N. America and the Mediterranean, and especially of Greece. He entered the naval service in 1741; in 1758 he became a member of the French academy; in 1781 he was made commander of a squadron; he lost his sight through over study in 1800; and in 1804 was appointed a member of the board of longitude. He was an accurate observer, and a patient, industrious, and persevering hydrographer. He was chiefly employed in America and the Mediterranean. One of his principal works comprises his observations on the American coast, and is entitled *Voyages sur les côtes de l'Amérique Septentrionale*, Paris, 1753. A pension of \$600 was conferred by Napoleon on his widow in 1806.

CHABLAIS, one of the 3 provinces of the administrative division of Anney in Savoy, kingdom of Sardinia, bounded N. by the lake of Geneva, S. by the province of Faucigny, W. by the canton of Geneva, and E. by the Valais; area 856 sq. m.; pop. 57,562. The country is mountainous, possesses fertile valleys, with rich pastures and fine forests. Corn, wine, and fruit, especially chestnuts and walnuts, abound. The principal articles of trade are grain, cattle, cheese, and timber. Building stone is extensively exported to Geneva. The great Simplon road traverses the northern part of the province. The Romans reared horses in this province, whence its name *Caballica provincia*, *Caballicus ager*, or *Chablasium*. In the middle ages it formed part of Burgundy. In the 10th century it was given by the German emperor Conrad to Humbert, first count of Savoy, whose descendants assumed, in the 14th century, the title of counts of Chablais. Afterward united to France, and forming part of the Leman department under the empire, it was restored to Savoy in 1814, and became one of the neutral provinces of Sardinia. The chief town is Thonon, where the governor resides.

CHABLIS (anc. *Cabliacum*), a canton and small town in the French department of Yonne, in Champagne; pop. of the canton, which is divided into 14 communes, 8,879, and of the town 2,700. There are in the canton 2 manufactories of silk, 2 of earthenware, a tannery, and 8 mills. The principal article of trade is wine. The best qualities are those of Valmur, Clos, Vandesir, Bouguereau, and Mont du Milieu. (See *BURGUNDY WINES*.)

CHABOT, FRANÇOIS, a French terrorist, born in 1759, died April 5, 1794. He was the son of a cook, became a Capuchin friar, was appointed grand vicar of the bishop of Blois, and in 1791 was sent to the legislative assembly. He became conspicuous by the violence of his democratic zeal, and declared in one of his speeches that "the citizen Jesus Christ was the first *sans-culotte*." Chabot was the first to apply to well-dressed young men the name of *muscadine*; in his person and dress he affected

the most extravagant neglect, and he proposed to expel from France all persons except those whose hands were unwashed. At length, however, he lent himself to the machinations which were set on foot by the enemies of the revolution. An Austrian banker of the name of Frey, one of their most active agents, gained him over by giving him his sister in marriage with a dowry of \$40,000. Chabot, whose head was turned by this sudden fortune, soon became implicated in various suspicious operations, and was finally guillotined.

CHABOT, PHILIPPE DE, a French general, born toward the end of the 15th century, died June 1, 1543. Descended from an ancient family of Poitou, he was brought up with Francis I. Having bravely defended Marseilles in 1524, he was made prisoner at Pavia in 1525. Appointed admiral immediately after his release, he was sent to Italy in 1529 to negotiate the ratification of the treaty of Cambrai by Charles V. Made commander-in-chief of the forces in Savoy in 1535, he effected the conquest of part of that country and of Piedmont, but was censured for not following up his victory. On his return to France charges of frauds upon the national treasury were brought against him by the constable of Montmorency. Found guilty and imprisoned, he was soon afterward pardoned by the king at the urgent solicitation of the duchess d'Étampes, and reinstated in his position after the disgrace of Montmorency. He is said to have been the first to suggest the project of colonizing Canada. A collection of his letters written in 1525 is in the imperial library of Paris. A monument, dedicated to him by his son Léonor (the same who during his governorship of Burgundy refused to carry out the orders of Charles IX. to enact in that part of the country the horrors of the St. Bartholomew night), is now in the Louvre.

CHABRIAS, an Athenian general, killed in the harbor of Chios 358 or 357 B. C. In 392 he succeeded Iphicrates in the command of the Athenian forces before Corinth, was afterward sent to chastise the Æginetes for depredations on the coast of Attica, and assisted Evagoras in Cyprus, and Acoris in Egypt, against the Persians. In 378 he commanded the army which the Athenians sent to the aid of Thebes against the Lacedæmonians, under Agesilaus, on which occasion he saved his troops from impending defeat by a military manœuvre renowned in antiquity, commanding them to await the attack of the enemy with pointed spear and shield, resting on one knee. In 376 he won an important victory over the Lacedæmonian fleet off Naxos. The Athenians having abandoned the alliance of Thebes, he defended Corinth against Epaminondas. A few years later he went on his own account to Egypt, where he commanded the naval forces of Tachos, then in rebellion against the Persians, whose cause, however, after the desertion of the Spartans, he gave up as hopeless. After his return to Athens, he took part in the expedi-

tion against Thrace at the outbreak of the so-called social war. At the siege of Chios his vessel was the first to enter the harbor, but becoming isolated and disabled was soon abandoned; he alone refused to save his life, and fell fighting. He was the last of the great Athenian generals. Demosthenes said of him that he conquered 17 cities, took 70 vessels, made 3,000 prisoners, and enriched the treasury of Athens with 110 talents. One of his apothegms, for which he was celebrated, was that an army of stags led by a lion is superior to an army of lions led by a stag. His life was written by C. Nepos.

CHACHAPOYAS, a district of Peru, in the province of Truxillo, department of Libertad, on the frontier of Ecuador, intersected by the central branches of the Andes, and by the river Chachapoyas, which flows N. W. through the district and falls into the Marañon. The length and breadth of the district are respectively 114 m.; pop. about 12,000. The mountainous regions are extremely cold and the valleys excessively hot. Wheat, maize, various kinds of fruits and herbs, sugar, cocoa, indigo, are produced, and cotton and tobacco in peculiar abundance. Cattle, horses, and sheep are reared. Weaving of cotton is also a favorite occupation. Few vestiges remain of the former mineral wealth of the country. There are but few mines, and only one gold mine.—CHACHAPOYAS, or SAN JUAN DE LA FRONTERA, the capital, is a place of much trade, especially in tobacco, which is raised in great quantities in the neighborhood. It is situated near the W. declivity of the E. Andes, 185 m. N. E. of Truxillo, and 70 m. E. N. E. from Caxamarca. Pop. variously estimated at 5,000 and 8,000.

CHACO, EL GRAN, an extensive region of South America, lying in the centre of the continent, between lat. 18° and 28° S. and long. 58° and 68° W., being the most northern of the plains which occupy the surface of the provinces of La Plata, extending on the E. of the mountain region as far as the banks of the Paraguay, and from the N. boundary of the republic to the confluence of the Salado with the Parana, occupying the whole tract between these 2 rivers. This immense tract of country covers nearly  $\frac{1}{2}$  of the whole Argentine confederation, or an area of about 120,000 sq. m. The most important tributaries of the Paraguay which traverse the country are the Pilcomayo and Bermejo. The attempts at navigating the former river have failed, owing to the rapidity of its course and the shallowness of its waters. But steamboat navigation on the Bermejo has been proved to be practicable, at least during part of the year. The climate is extremely cold in the E. mountainous regions, but excessively hot in the low valleys. There are several lakes in the country, and the soil is in many parts of extraordinary fertility. Palm trees of enormous size, orange, melon, fig, cotton, cocoa, and various other trees abound. Of animals are found horses, oxen, sheep, vicuñas, llamas, deer, bears, otters, monkeys, and apes. Of birds there is a

great variety; and also bees yielding wax in abundance. The country is destined to become of great importance in South America as soon as communications are thoroughly established. Little is known at present concerning the number of the inhabitants. They are mostly roving Indians, including the Tobayas, Guaranas, Payaguases, and other tribes.

CHADDA, CHAD, TOHADDA, TRAD, or BENOOWE, a river of Guinea, joining the Quorra in lat.  $7^{\circ} 47' N.$ , long.  $7^{\circ} 8' E.$  It is larger than the Quorra at the junction, and was supposed by the Landers to form the principal outlet for the waters of Lake Tchad. Vessels can ascend the Quorra and Chadda from the gulf of Guinea to the town of Jacobah on the latter river. (See BENOOWE.)

CHÆRONEA, a town of Boeotia on the banks of the Ophissus, near the frontier of Phocis, renowned for the great battle in which Philip of Macedon defeated the Athenians, the Corinthians, and Thebans (338 B. C.). This victory was won chiefly by the valor of Alexander, then a youth of 18, who commanded the left wing of his father's army, and broke the sacred band of the Thebans by the weight of the Macedonian phalanx. It made Philip master of Greece. Another battle was fought here (86 B. C.), and won by Sylla, over the army of Mithridates, king of Pontus, under Archelans. Some remnants of the ancient town are still visible at the village of Capurna, such as a theatre on the mound of the slaughtered Thebans, an aqueduct, and a broken marble lion.

CHAFF, the dry calyx of the grasses and the grains. The name is also sometimes applied to the straw cut into short lengths for mixing with meal, &c., to make what is called chopped feed. This is the chaff used by the ancients for mixing with clay in the manufacture of brick.

CHAFFINCH (*fringilla caelebs*, Linn.), one of the most common and most beautiful of the passerine family, and a native of Europe. The color of the bill varies according to the season, from a blue to a pale reddish brown; the eyes are hazel; the forehead black; upper part of the head and hind neck grayish blue; back reddish brown; fore neck and breast purplish red or dull pink; rump yellowish green; the larger wing coverts black, the secondary tipped with white, the smaller black and grayish with white spots; the quill feathers white at the base and along the inner margin; the tail brownish black, the exterior feather obliquely marked with white, including the middle of the outer web and the terminal third of the inner, the next slightly margined with white internally, and tipped with the same on the inner web; the middle feathers brownish gray, blackish along the shafts. Female with the upper part of the head and the back light grayish brown; the rump yellowish green; the breast pale yellowish gray. Young like the female, with the tail paler. Length of the male  $6\frac{1}{2}$  inches; extent of wings  $11\frac{1}{2}$  inches; bill  $\frac{1}{4}$  an inch;

tarsus  $\frac{1}{4}$  of an inch; the female is a trifle smaller. The variations from these colors are slight, though the tips of the feathers get considerably worn, giving a brighter appearance to the plumage of the head, back, and breast. The chaffinch is a permanent resident in Great Britain, though in corresponding latitudes on the continent it migrates southward. Its notes are monotonous, generally *twink, twink*, repeated 3 or 4 times; hence its provincial name of twink; it is almost constantly heard in the lanes and gardens from May 1 to the middle of June. In summer they live chiefly on insects, with which they feed their young; in winter they become gregarious and frequent the fields, farm-yards, and roads, in search of seeds and grain, to aid the digestion of which they swallow smooth particles of gravel. Their flight is rapid, with frequent undulations; on the ground they move with short leaps. The nest is very neatly constructed of moss, lichens, wool, feathers, and hair, and is generally of such a gray color as to be seen with difficulty in the cleft of the lichen-covered trees. The eggs are 4 or 5 in number, about  $\frac{1}{4}$  of an inch long, of a purplish white or pale reddish gray color, with a few spots and lines of reddish brown. The chaffinch is one of the most familiar birds, and, with the sparrows and buntings, in the winter will come in flocks around the doors of the farm-houses. They prepare to breed in April, and hatch their first brood by the middle of May, and a second by the end of July. The chaffinch is much esteemed in Germany as a song bird, and from its beauty it is occasionally seen as a parlor ornament elsewhere.

CHAGRES, a seaport town of New Granada, at the mouth of Chagres river, on the N. coast of the isthmus of Panama. It is built on both sides of the river, the left part being called the American town, inhabited chiefly by natives of the United States, and the right part the old Spanish or Indian town, with negroes, half-breeds, Mexicans, Spanish, and a few English. The former is composed of wood houses, the latter mainly of huts thatched with palmetto, and contains an old church. The harbor is difficult of entrance and very shallow. The Panama railroad, across the isthmus, commences at Aspinwall, about 8 m. N. E. of Chagres.

CHAGRES RIVER, of New Granada, rises about 80 m. N. E. of Panama, flows at first W., then N., and after traversing a fertile country enters the Caribbean sea, on the N. coast of the isthmus of Panama. Navigation is rendered difficult by the great rapidity of the river and its numerous rapids.

CHAILLOT, one of the suburbs of Paris, situated beyond the Champs Elysées, between the avenue of Neuilly and the river Seine. It was of old renowned as the seat of a convent; it is now important as a manufacturing place.

CHAIN, a measure of length, formed of links of iron wire; a surveyor's chain having 100 links, each 7.92 inches in length. Engineers,

not wishing to obtain areas in acres, prefer to use chains of 50 or 100 feet in length, with links of 6 or 12 inches.

**CHAIN SHOT**, two balls connected by a chain, chiefly used in naval battles to cut down masts and rigging.

**CHAIN SNAKE** (*coronella getula*, Linn.; genus *ophibolus*, Bd. and Gd.), an American species first described by Catesby under this name; it is also called thunder snake, and king snake. It has been arranged under different genera, but the above is the name given to it by Dr. Holbrook. The head is small, short, and rounded at the snout; the nostrils are large, and open laterally; the eyes small, and the iris dusky; the neck is very little contracted, and is covered above with small smooth scales; the body is elongated, stout, with large, smooth, 6-sided scales above, and large plates below; the tail is quite short, thick, and soon tapers to a horny point. The colors of this very handsome snake are singularly arranged; the ground-work of the whole upper surface is a rich shining black, all the plates about the head being marked with one or more white spots; the chin and throat are white, most of the plates being margined with black; on the body are about 22 transverse narrow white bars, embracing 2 or parts of 3 scales, bifurcating on the sides, one branch going to the ring in front, the other to the ring behind, causing a nearly continuous waving white line on the sides from the neck to the vent; alternating with the dorsal bars there are irregular white blotches reaching to the abdomen, which is shining violet black; the tail has 4 or 5 transverse rings. In a specimen 42 inches long, the head measured a little over an inch, the body 86 inches, and the tail 5 inches; they attain a length of more than 4 feet. Though fond of moist and shady places, it does not take to the water or to trees; it feeds on moles, mice, small birds, and reptiles, and even other snakes. It is found from New York to Florida; its western limit is not positively known. The abdominal plates are about 215 in number, and the bifid sub-caudal scales from 40 to 50.

**CHAINS**, a place, or ledge, built on the outside of a ship, abreast of her lower rigging, and projecting from her side. The shrouds are brought down to the outside, and the chains thus act as permanent outriggers, giving the lower rigging a wider spread than it could otherwise have, and affording the mast a firmer support. Chains are now little used except in large men-of-war.—**CHAIN PLATES** are plates or rods of iron fastened to the ship's side under the chains, and led up the outside of the chains. The lower dead-eyes of the lower rigging and backstays are fastened to the chain plates, and by their means the rigging is set up. Where ships have no proper chains, the chain plates are bolted up along the side.

**CHAIX D'EST ANGE**, VICTOR CHARLES, a French advocate, born in Rheims, April 11, 1800. An able defence of the political conspir-

ators of 1820 and 1821 gained for him early popularity. He afterward distinguished himself in criminal trials, where he was considered as almost without a rival. Elected to the chamber of deputies by his native city in 1831, he took his seat among the moderate members of the opposition, and gave peculiar attention to the questions of copyright and individual liberty. One of the interesting trials in which he was engaged in 1833 was in reference to Victor Hugo's drama, *Le roi s'amuse*, when he was employed by the government to sustain the suppression of the drama, and in which he had the author himself and Odilon Barrot as adversaries. A member of the constituent assembly in 1848, he evinced great zeal in his opposition to the doctrines of the socialists, with a leaning to the Bonapartists. His sympathies were rewarded in 1857 by the place of attorney-general to the imperial court of justice, in which capacity he appeared as prosecutor against the Italians implicated in the attempt of Feb. 14, 1858, upon Napoleon III.

**CHALCEDON**, or **CHALCEDON**, a town of Asia Minor, on the Bosphorus, opposite Constantinople, and near the modern town of Scutari. It was founded by a colony from Megara, 673 B. C., was taken by the Persians, then by the Athenians, and after a period of independence, fell under the dominion of the kings of Bithynia. Its walls were destroyed by Valens, and it is now but a poor village. In ecclesiastical history it is celebrated as the seat of the 4th œcumenical council, convoked A. D. 451, at the request of the emperor Marcian, to condemn the heresy of Eutyches concerning the two natures of Christ, and to counteract the bad effect of the unauthorized assembly held at Ephesus in 449, to which the title of *Latrocinium*, or robber-synod, has commonly been applied. Nice was at first designated as the place of meeting, but the disturbances created there by the partisans of Dioscorus, who had presided over the robber-synod, induced the emperor to select some spot nearer his capital. Accordingly 680 bishops, chiefly from the East, assembled in the church of St. Euphemia, at Chalcedon, Oct. 8. Pope Leo I., afterward called the Great, presided by his legate. The creeds of Nice and Constantinople were adopted as the rule of faith; and after a prolonged discussion the *Latrocinium Ephesinum*, as well as the doctrines of Eutyches and Dioscorus, in favor of which that synod had pronounced, was condemned. The bishops professed their belief in the existence of two natures in Christ, and declared the Virgin Mary truly the mother of God, directing their decree against both Nestorian and Monophysite doctrines. Dioscorus was deposed in the following terms: "The bishop of Rome, through our instrumentality and that of the present council, with the blessed apostle St. Peter, who is the foundation of the church and of the Catholic faith, has deposed Dioscorus from every dignity both episcopal and sacerdotal." Fifteen sessions were held, in which 80 disciplinary canons

were promulgated, among which was the celebrated decree, opposed by the Roman legates, which made the see of Constantinople equal in privileges and jurisdiction, and next in rank, to that of Rome. It was also ordered that no bishop should take money for ordination, that no ecclesiastic should undertake the administration of the temporal matters of the church, or of widows and orphans, forsake the church for any other office, go before a lay tribunal, or hold more than one benefice. Bishops were forbidden to divide their provinces, and were given control over the clergy in monasteries. Deaconesses were forbidden to be appointed under the age of 40. Differences were adjusted between the sees of Antioch and Jerusalem, Nicomedia and Nice; and Theodoret, deposed under the emperor Flavian, was restored to his bishopric. These decrees were confirmed by Leo, with the exception of the one relating to the see of Constantinople, and throughout the Latin church the council has always been held in high veneration.

**CHALCEDONY**, one of the numerous varieties of the quartz family, which are distinguished from each other, not by difference of chemical composition, but by their peculiar external form, markings, and colors. The peculiarities of chalcedony consist principally in its mammillary, botryoidal, and stalactitic shapes, and its waxy or horny lustre and texture. It is found lining cavities in trap, and also in other rocks, being arranged in concentric layers, precisely as if its particles had been introduced in a gaseous or fluid form. The intermixture of opal with the purely silicious layers proves that water was present during the production of the mineral incrustation. By the variety of its colors and the high lustre it acquires by polishing, chalcedony is much esteemed as an ornamental stone, though its great hardness renders it very difficult to work. In several of the countries of Asia it is common to find articles of this stone, as cups, plates, &c., of the most exquisite workmanship, as delicate as the finest chinaware, and such as would never be attempted by any of the more civilized nations. Specimens of the finest texture and most delicate shades are selected for these, especially such as are more or less white, passing into transparent and brown. In Europe the stone is worked with the agates at Oberstein, and for the same purposes which have already been mentioned under **AGATE**. Some of the finest known specimens of chalcedony were found at the Treavean copper mine in Cornwall. They occurred in a single rug or cavity in the mine, and none others were found like them. One of them, described as resembling the anatomized wing of a large bat, displaying its bones and arteries, is preserved in the British museum. The mineral is frequently met with in the United States, and is particularly abundant where metallic veins are worked, but no specimens of extraordinary beauty are found.

**CHALCHIHUITL**, the Indian name of a green-colored stone, held in high repute by the ancient Mexicans, and by the Indian tribes now inhabiting the northern and western portions of New Mexico. They possess the art of fashioning it into ornaments, as beads and other trinkets, and occasionally use it in trade, valuing it more highly than gold. It proves, according to the researches of Mr. W. P. Blake, who has published an article upon it in the "American Journal of Science" (March, 1858), to be turquoise. The locality, at which it has been obtained from remote periods, is in the mountains called Los Cerrillos, 20 m. S. E. from Santa Fé. A quarry of extraordinary extent has been excavated in a granular light-colored porphyry; and around it are a number of smaller excavations. Mr. Blake describes the great pit as appearing, from the top of the cliff, "200 feet in depth, and 300 or more in width." Pine trees more than 100 years old are growing upon the debris in the bottom and about the sides. These excavations were evidently made before the conquest of the country by the Spaniards, though the Indians still continue to visit the locality to search among the debris for more crystals. The earliest historians, as Bernal Diaz, who accompanied Cortes, and others, make mention of chalcihuitls among the presents made by Montezuma, intended especially for the Spanish sovereign. Mr. Blake proposes that the name be retained by mineralogists for this New Mexican variety of turquoise. The Indian pronunciation of it is *chal-che-we-ta*.

**CHALCIDIUS**, a Platonic philosopher, who flourished probably in the 6th century A. D. He is described upon the manuscripts of his work as *vir clarissimus*, and these vague words are the only allusions which we have to his life. There remains from him a Latin translation of the first part of the "Timæus" of Plato, with a learned commentary. This work is dedicated to a certain Osius, who has been by some regarded, without however any evidence of it, as the archbishop Osius, who took a leading part in the debates of the council of Nice in 325. Giraldi and Brucker have maintained that Chalcidius was a Christian, Gonjet and Mosheim, that he was a pagan. The last and best edition of his commentary is that of Fabricius, at the end of the second volume of the works of St. Hippolytus (Hamburg, 1718).

**CHALCIS**, or **NÆGÉROPOLIS**, the largest and most important city of Eubœa, the ancient name for the island of Egripo, lying immediately off the E. shore of Bœotia, now Livadia, from which it is separated only by the narrow straits of the Euripus, which is evidently the origin of the modern name Egripo. The city and fortress, which was one of the strongest and most important of ancient Greece, is situated at the very narrowest part of the strait, which is formed by the crowding forward of a projecting spur of the mountain of Karababa, on the mainland, and the corresponding protrusion of a rocky promontory on the island side. Immediately on

this promontory, and rather on its southern verge, stands the modern town and port of Castro, its walls washed by the troubled waters of the narrow strait, through which the irregular flux and reflux of the current is extremely turbulent and rapid. Over against Chalcia, at about 8 m. distance, on a diagonal line, running nearly N. E. and S. W., is a steep craggy promontory on the Boeotian mainland, considerably to the S. of the strait. This is undoubtedly the "rocky Aulis" of the classic writers, on which was pitched the Hellenic camp of Agamemnon and the confederate kings, when the fleet was wind-bound "in the reflux places of Aulis," through the wrath of the offended Diana, until she should be appeased by the streams of virgin gore, polluting the paternal hands of the leader of the host. This promontory separates by its site 2 rocky inlets; one is of small size, and inconsiderable depth of water, to the N.; but the other, to the S., is much larger, and is still called Vathy, the modern corruption for *Βαθὺ Λιμὴν*, the deep harbor, in which lay moored the Greek fleet, the lesser gulf or basin being inadequate to contain above 50 galleys, according to the calculation of Strabo. Col. Martin Leake, who paid a cursory visit to these interesting localities, found that the strait was divided into 2 passages of unequal width, by a small square castle. A stone bridge, 60 or 70 feet in length, connects the Boeotian shore with this castle. A wooden bridge, about 85 feet long, which may be raised at both ends, for the purpose of admitting the passage of vessels, communicates from the small castle to the gate of Castro, which is in a tower projecting from the walls. It appears that the round tower is a Venetian work, the rest of the fortifications Turkish. Col. Leake could find no vestiges of ancient Chalcia, except a few fragments of white marble in the walls of mosques and houses, and the bust of a statue in the wall of a house in the fortress. The lion of St. Mark remains over the gates of Castro, many of the better houses of which are of Venetian construction, and there is a church with a high pointed roof, a square tower, and Gothic windows, which was probably built by the same people, as they were in almost constant possession of the place for 8 centuries preceding its capture by Mohammed II. in 1470.

CHALDEA was properly the name of the S. W. part of ancient Babylonia, bordering on the N. E. confines of Arabia. So it is mentioned by Ptolemy the geographer. Strabo also speaks of a Chaldean tribe living in that region. This district comprised the most fertile plains of Babylonia, made wonderfully productive by the numberless canals constructed by the rulers of that empire for defence, commerce, and irrigation. But commonly the name is applied to Babylonia in general, designating the whole of the province, sometimes even the empire of that name. The Hebrew term, probably for all these meanings, is Chasdim, or land of the Chasdim (Chaldeans). The latter first appear in

the Scriptures as the owners of the region which was the abode of the ancestors of Abraham, then as a conquering tribe and nation, and beside as a caste of priests or astrologists. The Ur Chasdim (Ur of the Chaldees) of Abraham was considered by many modern critics to have been a place in Mesopotamia, and identical with the castle of the same name, mentioned by Ammianus as situated between Nisibis and the Tigris. This, as well as the circumstance that Chaldeans are mentioned by Herodotus as soldiers in the Assyrian army of Xerxes, and by Xenophon, in the history of the retreat of the 10,000, as a free and warlike people in the Carduchian mountains, made it appear probable to the same critics that the original home of this nation was among, or at least near, the mountains of Armenia, whence they made their incursions, it was supposed at different periods, into the neighboring southern countries, subduing Babylon, and afterward Syria. Gesenius supposed their name to have been originally *Card*, changed into that of *Chasdim* and *Chald*, and preserved in that of the modern Koords, inhabiting the region of the ancient Carduchi. Their Semitic descent seemed to be proved by the language called after them; so Josephus represents them as descendants of Arphaxad, son of Shem, the latter part of that compound name supporting his opinion. But the history of this people, particularly its earlier part, is involved in great obscurity, and it still remains to be seen whether the discoveries of late years made in the ruins of Babylon, Nineveh, and Susa, which throw a new light upon this subject, and the results of which are now systematically arranged in George Rawlinson's great work on Herodotus (London, 1858), will dissipate all the difficulties. Nimrod, the mighty hunter, who is mentioned in the book of Genesis as the founder of the empire of Babylonia, which is afterward styled the land of the Chaldees, is a Hamite, and seems to have extended his conquest northward, at least according to an almost generally adopted explanation of the passage which speaks of him. The Greeks name Belus as the founder of the same empire. Nothing is said in the Bible about the nation to which belonged Amraphel, the king of Shinar, that is, Babylonia, who fought a battle in Palestine in the days of Abraham; and a chasm of about 13 centuries separates the first mention of the Chaldeans in connection with the Ur of the ancestors of the patriarch, from their next reappearance in scriptural history, in the time of Isaiah (except their being mentioned in the book of Job as capturing the camels of the patriarch of Ur); while Babylonia, which appears first at the same time in relation to the history of the Hebrews, is known, from the testimony of the classical writers, to have existed during this whole period as a highly developed state, by turns conquering and conquered, a product of its advanced industry being also mentioned in the history and book of Joshua. A natural consequence of these dates would therefore have

been the conclusion that Babylonia, having been founded by Nimrod or Belus, be these names identical or not, had reached a high degree of culture, might, and glory, before it was conquered by the warlike tribe who made Babylon the centre of greater conquests, power, and civilization, "the beauty of the Chaldees' excellency," as it is called in Scripture, the *Chaldæarum gentium caput*, as Pliny calls it. Thus the history of this nation, as masters of Babylonia, would be dated either from the year 747 B. C., the first of the so-called Chaldean era of Nabonassar in the astronomical canon of Ptolemy, who makes him the first of a series of 19 princes of this nation who ruled the great city after the fall of the first Assyrian empire, or from the reign of Nabopolassar, who in alliance with Cyaxares, king of the Medes, broke the yoke, and conquered even the capital of the Assyrian state, thus founding the independence of Babylonia, and its predominance in western Asia, which his son Nebuchadnezzar so vastly extended. But this conclusion is weakened by the circumstance that Babylon is known to have been already the seat, in the most remote periods of history, of a system of religious worship and science, which in antiquity was generally attributed to the genius and made the glory of the Chaldeans, whose name both in biblical and classical antiquity designates not only the nation, but also the peculiar priest caste devoted to the sacred science of astrology; it being also mentioned that Callisthenes, who accompanied Alexander on his expedition to Persia, sent Aristotle a collection of astronomical observations made by the Chaldeans in the temple of Belus, their observatory, during a period of no less than 1,908 years. It is moreover shaken by the contents of the fragments of the Babylonian historian Berosus, preserved in Josephus, Eusebius, and others, which, though full of extravagant legends, at least prove a very ancient belief that the Chaldeans were the earliest or among the earliest organizers of Babylonian society. Berosus speaks of an antediluvian dynasty of Chaldean kings, the first of whom was Alorus, and the last Xisuthros, in whose time happened the great flood, the description of which bears a great resemblance to that of the deluge of Noah. During the reign of the 8d of these kings, Oannes (supposed by some to be the Nebo of Scripture), an extraordinary being, half man, half fish, speaking with a human voice, came out of the waves of the Erythraean sea to teach the inhabitants of the shore religion and laws, science, art, and industry, retiring every evening into the sea and reappearing every morning. He and his successors became the civilizers of the people of Babylonia. They are called Annedoti, being perhaps allegorical representatives of 7 chief priests, or of propitious genii believed to have inspired as many sacred books of worship and science. These were buried by Xisuthros at the time of the flood in the city of the sun, Sippara, where they were afterward found. Some critics have seen in

this myth of Oannes a confirmation of a relation of Diodorus, according to which a colony from Egypt headed by Belus, the son of Poseidon and Libya, carried the science of their land over the sea, to the inhabitants of the Babylonian plains, which served to vindicate the claims of the Egyptians for the priority of their astronomical knowledge over that of their great Asiatic rivals; while others regarded the Chaldeans as the fathers of astronomy, and their country as the focus of this science, whence it spread to India, Egypt, and the West. The 2d and 8d dynasties of the 86 postdiluvian kings of Berosus are also Chaldean. The most plausible way of reconciling the discrepancies in the testimony of the ancients, seemed to be to the critics of the school of Gesenius, whose dissertation on the Chaldeans in the *Encyclopædie of Ersch and Gruber* was long regarded as the best solution, to sum up the history of the Chaldeans as follows. Their first home is either in the mountains of Armenia, or somewhat further N. in those of the Caucasus, or further S. in those of Koordistan, their scriptural ancestor being either Arphaxad, son of Shem, or Chesed, son of Nahor, likewise a Shemite. They spread over Mesopotamia and make incursions into Babylonia. A colony of them, soon after the foundation of Babylon, establishes the influence of their priest caste in that state. Like the Brahmins of India, they rule the public worship, and through it the laws and manners of the Babylonians. They develop art, industry, and commerce, but above all the science of astronomy and astrology. They occupy the highest rank in the state, and its governors or viceroys, in the period of subjection to Assyria, are chosen from their body, of which is also Nabonassar, who heads the series of 19 Chaldean princes mentioned in the *Almagest* of Ptolemy (from 747 B. C.), probably vassals of the Assyrian empire. One of these princes is Merodach Baladan (mentioned also under this name by Berosus, and under that of Mardok-empad by Ptolemy), who, in the time of Sennacherib, sends ambassadors to Hezekiah, king of Judah, probably with the object of forming an alliance against the common oppressor. His successor, Belibus, is carried away as captive by Sennacherib, who makes his own son, Esarhaddon (the Asordan of Berosus), viceroy of Babylonia. In the mean time, the stock of the Chaldean nation remains in their native mountains, warlike, fierce, and predatory. They appear as plundering invaders in the book of Job, and at a late period as Persian soldiers in the history of Herodotus, and as a warlike mountain tribe in the *Anabasis* of Xenophon. Strengthened by new immigrations of this warlike people, Nabopolassar, the Chaldean viceroy of Babylonia, shakes off the yoke of New Assyria, destroys Nineveh with Cyaxares, and thus becomes the founder of the Chaldean empire, now properly so called, whose limits, might, and glory are vastly extended by his



son Nebuchadnezzar, who leads his fierce armies and the hosts of his vassals as far as Egypt, or, according to the legend, as far as the pillars of Hercules, peoples his provinces with nations carried into captivity, and adorns his enlarged capital with the treasures of destroyed cities and temples, with palaces, temples, and magnificent gardens. The Chaldeans are now the nation of Babylonia, though their priests appear beside under this name as a caste, or at least as a numerous college, similar to that of the magi of the Medes, and devoted to the science of the stars, and to the religious practices connected with it. Through Nebuchadnezzar's conquests Babylon is made "the mistress of kingdoms," who says in her heart, "I am, and there is nothing else beside me;" through the canals constructed by him, as well as those by the queen Nitocris (his or his son's wife), she becomes "the city of merchants." His son, Evil Merodach, is murdered by his brother-in-law, Neriglissar; the son and successor of the latter, Laborosoarchod, by some nobles, who place upon the throne Naboned, the Labynetus of Herodotus, the last of the Chaldean kings. Babylon, "the golden city," enervated by luxury and extravagance, becomes an easy prey to the warlike Medes, "who do not regard silver, nor delight in gold." The "bitter and hasty" nation of the Chaldeans disappears as such, and its name is preserved for some time only in scattered tribes, and its glory in the science of its priests. The determination of the lunar periods, that of the equinoctial and solstitial points, a more precise definition of the solar year, the division of the ecliptic into 12 equal parts, that of the day into hours, the signs, names, and figures of the zodiac, the invention of the dial, are among the improvements in astronomy attributed to the knowledge of the Chaldeans. In their religion, so closely connected with their science, light is the chief element, and the Sun, the Moon, Saturn, Jupiter, Mars, Venus, Mercury, and other stars, as well as the constellations of the zodiac, are chief objects of adoration, worshipped in temples with sacrifices and festivals; though it may be hard to define precisely to which heavenly bodies are to be applied the names of Bel, Gad, Nebo, Merodach, Nergal, their divinities mentioned in Scripture, or those of Salambo, Turrah, Derketo and Mylitta, which are spoken of in profane writers. Their legends speak also of the monsters of the chaos, of Amoraa, or primitive night. With the decline of Babylon their science sinks, and Chaldeans are afterward known among Greeks and Romans only as astrologers, magicians, and foretellers, and as such despised, and finally persecuted by some of the emperors.—A brief résumé of the results obtained from the researches on the discovered cuneiform inscriptions, according to the essays of George and Col. Henry Rawlinson, will not only complete the history of the Chaldeans, but also bring before the reader the new theory of the latest critics regarding the earliest period

of Babylonia. It must, however, be observed, that only few of the facts and dates collected in the recently published dissertations can be, or are by the learned inquirers themselves, regarded even as definitely ascertained, while most of the conclusions are given as conjectures, based on hypothetical decipherings, often ingenious, but rarely to be relied on with certainty. The main points are these: About the year 2234 B. C. the Oushite inhabitants of southern Babylonia, who were of a cognate race with the primitive settlers both of Arabia and of Ethiopia, are supposed to have first risen into importance. Delivered from the yoke of the Medes, whose reign is mentioned by Berossus as that of the first postdiluvian dynasty, they established a native dynasty, founding an empire, whose capitals were Hur, supposed to be the scriptural Ur, now Mugheir; Erech, now Warka, or Urka, the great necropolis of Babylonia; Larsa, the scriptural Ellasar, now Senkereh; and Nipur, the city of Belus, now Niffer. They introduced the worship of the heavenly bodies in place of the elemental religion of the Magian Medes. "In connection with this planetary adoration, whereof we see the earliest traces in the temples of the moon at Mugheir, of the sun at Senkereh, and of Belus and Beltis (or Jupiter and Venus) at Niffer and Warka, the movements of the stars would naturally be observed and registered, astronomical tables would be formed, and a chronological system founded thereupon, such as we find to have continued uninterrupted to the days of Callisthenes and Berossus. A system of picture-writing, which aimed at the communication of ideas through the rude representation of natural objects, belonged, as it would seem, not only to the tribes who descended the Nile from Ethiopia, but to those also who, perhaps, diverging from the same focus, passed eastward to the valley of the Euphrates. In the further development, too, of the systems which the progress of society called forth, a very similar gradation may be presumed to have been followed by the 2 divisions of the Hamite race, the original pictures being reduced in process of time to characters, for the convenience of sculpture, and these characters being assigned phonetic values which corresponded with the names of the objects represented." "To the primitive Hamite dynasty, which is represented, probably, in the Bible by Nimrod, the son of Cush and grandson of Ham, the 2 earliest of the monumental kings, Urukh and Ilgi, may be assigned. According to Berossus, the chronological limits of the dynasty are from 2234 to 1976 B. C., and the dates obtained from the inscriptions are in agreement with this calculation. At the latter date there may be presumed to have been a break in the line, the royal family being dispossessed by the Chaldeans, who seem to have emigrated from Susiana to the banks of the Euphrates." "Of these immigrant Chaldean Elamites Chederlaomer may have been the leader, while Amraphel and Arioch, the Hamite kings of Shi-

nar and Ellasar, who fought under his banner in the Syrian war, as subordinate chiefs, and Tidal, who led a contingent of Median Scyths belonging to the old population, may have been the local governors who had submitted to his power when he invaded Chaldea." Ochederlaomer is probably the Kudur-mapula of the inscriptions, and the Elamite founder of the 2d Hamite dynasty of Babylon, termed Chaldean by Berosus, whose historical dates are in the main confirmed by the inscriptions. Ismi-dagon, who reigned about 1861 B. C., extended the Chaldean power over Assyria. Merodach-namana (about 1675 B. C.) is the first who is styled king of Babylon. "On the subject of the Arabian dynasty (1518-1278 B. C.), which, according to Berosus, succeeded the Chaldean on the Euphrates, nothing certain is ascertained from the monuments. The Arabians formed an important element of the population of the Mesopotamian valley from the earliest times." The predominance of Assyria lasted probably from 1278 to 747 B. C. During these 526 years the history of the subordinate Babylonia is, with few exceptions, a blank. The era of Nabonassar (747 B. C.), which has no historical importance, marks the date of a great revolution. Of the successors of Nabonassar, Merodach Baladan was conquered by Sargon, king of Assyria, regained his kingdom, and was again deprived of it by Sennacherib, the son of Sargon, who plundered Babylon, ravaged the whole country, destroyed 79 cities and 820 villages, burned the palaces of the kings, and carried off the skilled workmen and the women. Babylonia was then governed by Asshur-nadin and Belibus, viceroys of the Assyrian monarch, or independent kings, until Esar-haddon, the son of Sennacherib, united the 2 thrones. Babylonia remained in subjection to the time of Nabopolassar (625 B. C.), who rebelled against Sarcus, the last king of Assyria, and with whom the later and greater Babylonian empire commences, which flourishes particularly under Nebuchadnezzar, the son of Nabopolassar, and ends with Nabonidus and his son Belshazzar (588 B. C.). The most remarkable divinities of the inscriptions, whose stellar and mythological character, however, can hardly be traced amid the endless confusion of names, titles, epithets, and signs, are Ra or Il, Anu, Bil, Hêa or Hoa, Biltâ or Beltis, Iva, San, Sin, Ninip, Bel-Merodach, Nergal, Ishtar, Nebo, Allata, Bel-Zirpu, &c. An attentive comparison of the different theories will at once show that many questions are still to be solved, and many objections to be answered; but still a solution may be hoped for that will reconcile all difficulties.

CHALDEE LANGUAGE is the eastern dialect of the Aramaic, of which the Syriac is the western, and which forms the northern branch of the Semitic tongues, the Hebrew, the Arabic, and some other minor dialects forming the southern branch. As the language of Babylonia in the time of its national greatness, whence it was brought by the Jews after their captivity

to Palestine, it is also called Babylonian. The Chaldee is known to us only through the writings of Jews, every trace of national literature in this language, if there was any such, having disappeared. The history of the Babylonian priest Berosus, of which fragments have been saved, was originally written in Greek. Beside a few words in Genesis (xxxi. 47), and Jeremiah (x. 11), we have in the Hebrew canon several chapters of Daniel (from ii. 4 to vii. 28), and Ezra (from iv. 8 to vi. 18, and vii. from 12 to 26), written in this language; and of works of later Jewish writers, the different Chaldaic translations and paraphrases (*Targumim*) of various parts of the Bible, the 2 Talmuds, and some more modern productions. The apocryphal books of Tobit, Judith, and Maccabees, as well as the history of the Jewish war by Josephus, are also supposed to have been originally written in Chaldaic, this idiom having become by degrees the common language of the Jews after the Babylonian captivity, and particularly from the times of the Maccabees. Of the Targums, that of Onkelos (probably written in Babylonia in the 1st century), a strict translation of the Pentateuch, is distinguished by the purity of its idiom, surpassing that of the biblical fragments; that of Jonathan ben Uziel, a paraphrase of the historic and prophetic books, composed in the 1st or 2d century, and the Pseudo-Jonathan and Hierosolymitan paraphrases of the Pentateuch, of much later date, are less pure and valuable. Of the Talmuds only the Gemaras or the commentaries are composed in a Chaldaic idiom, which is greatly corrupt, chiefly in that of Jerusalem, and requires a particular study; while the shorter and elder Mishna, or the text, is Hebrew, though with Aramaic features. After the conquest of Babylonia by the Arabs in the year 640, the use of the Chaldee language gradually ceased; and it is now spoken only in a few mostly Christian communities in the mountains of Koordistan. As a dialect it is distinguished from the Syriac by its avoiding diphthongs and the vowel *o*, for which it generally has *a*, by the use of *Dagesh forte*, as well as by generally accenting the last syllable, and a less defective writing; from the Hebrew, with which it has a common alphabet, by broadness, by substituting labial to hissing sounds, *x* to *m* and *z* to *c*, and by comparative poverty in vowels. In forms it is poorer than both the Hebrew and Syriac. To the best grammars of this language belong those of Buxtorf, Michaelis, Harris ("Elements of the Chaldaic Language," London, 1822), Fürst (Leipzig, 1835), Petermann (1841), Winer (Leipzig, 1842), and Bertheau (Göttingen, 1848). The great dictionary of Nathan bar Jachiel of Rome (of the 11th century), entitled *Aruch*, and enriched with additions by Mussaphiah, has been published in a more modern form by Landau (5 vols. Prague, 1819 and after). Buxtorf's *Lexicon Chaldaicum Talmudicum et Rabbinicum* (Basel, 1640), is founded upon it. Luzzato's *Oheb-Gez*, and Geiger's *Lehr- und*

*Leesebuch zur Sprache der Mischna* (Breslau, 1845), are valuable contributions.

CHALDRON, an English measure containing 86 bushels, used chiefly in the measurement of coal.

CHÂLET (Ger. *Sennhütte*), the name for the log huts in Switzerland in which the herdsmen reside. They are made of pine logs, notched at the extremities so as to fit together at the angles of the building where they cross. The roof is low and flat, covered with stones to protect it against the elements. The interior has scarcely any thing beyond the apparatus of the dairy, including a large kettle for heating the milk. In the loft above is a store of straw to serve as beds. The entrance is difficult, the ground outside being broken by the feet of cattle, and covered with heaps of mud and dung. In the Semmenthal alone there are about 10,000 châteaux, and all pastoral Swiss valleys are covered with huts of the kind. The herdsman who resides in the châteaux has to collect about 100 cows twice a day, to look after stragglers, and to make the cheese, which is the principal occupation inside the châteaux. The owners of cattle themselves reside also in châteaux, but they are of a superior kind, and less numerous. Some of these châteaux of the better sort, with their delicious milk, fresh butter, bread, and cheese, offer delightful retreats to the weary traveller.—Another kind of châteaux is a shed or barn, in which the hay is kept until the winter, when it is carried over the snow in sledges down to the villages below.

CHALEUR BAY, an inlet of the gulf of St. Lawrence, separates Lower Canada from New Brunswick. It receives the Restigouche river at its W. extremity, affords excellent anchorage, and is much frequented by mackerel fishers. Its navigation is everywhere safe. Length from E. to W. 90 m.; breadth from 12 to 20 m. A French fleet was defeated here by the British, July, 1760.

CHALFONT ST. GILES, a parish of England, co. of Bucks, on the Great Western railway; pop. 1,228. It was the residence of Milton during the plague in 1665, and the place where he finished "*Paradise Lost*." In a cemetery of the society of Friends in this parish lie the remains of William Penn, the founder of Pennsylvania.

CHALGROVE FIELD, in Oxfordshire, England, on the railway from London to Gloucester, memorable as the scene of the defeat of the parliamentary forces by the royal troops under Prince Rupert. The celebrated John Hampden was mortally wounded in this battle, June 18, 1643. A monument commemorating this event was erected in 1843, and inaugurated on the 200th anniversary of the day.

CHALICE (Lat. *calix*, a cup), the vessel containing the consecrated wine in the sacrament of the eucharist. In honor of its sacred purpose, it has usually been made of as costly a substance as the circumstances of a church permitted—of glass, crystal, silver, or gold—and

often embellished with sculptures and precious stones. St. Ambrose relates that in periods of distress the early Christians sold their chalices to aid the poor.

CHALK, an earthy mineral, consisting of carbonate of lime of friable texture, easily rubbed to a white powder. It constitutes rock formations of vast extent, being seen along the shores of the North sea and the English channel, in England and France, towering up in cliffs sometimes 1,000 feet high, that dazzle the eye in the sunlight with their brilliant whiteness. It is the chalk cliffs of England that gave it its original name of Albion, in allusion to its white shores. The rock formation of which chalk is the principal member, and which is called the cretaceous, or chalk formation, is the upper group of the secondary series. It is traced across the continent of Europe from the N. of Ireland toward the S. E. to the Crimea, a distance of 1,140 m., and from the S. of Sweden to beyond Bordeaux, about 840 m., occurring in patches over the greater part of the included area. It gives to the topography an interesting variety of abrupt cliffs upon the coasts and rivers, and of bold hills in the interior, intersected in every direction with valleys of smooth and flowing outline; but the soil it produces is in general too calcareous to be very productive. A remarkable feature in the chalk formation in some localities is the occurrence of layers of flint nodules in the rock, horizontally arranged, and not in contact with each other, and of all shapes and sizes, varying from an inch to a yard in circumference. The flints frequently appear to be concretions of silicious matter around organic substances, as parts of shells, sponges, &c., into the most minute pores of which the silica has penetrated, beautifully preserving their peculiar forms. The chalk itself is in great part composed of finely comminuted shells and corals, and it is now generally understood to have been derived from the same sources as the fine white calcareous mud which fills the bottoms of coral lagoons, and the interstices of its structures. This proves to be entirely of animal origin, in part finely-ground shells and corals, and partly the excrement of shell-fish, and of certain gregarious fishes, which, in the coral regions of the Pacific, were seen by Darwin through the clear waters, browsing quietly in great numbers upon living corals, like grazing herds of graminivorous quadrupeds. In the coral reefs of the South seas Mr. Dana found portions of these compact and solid as any secondary limestone, and parts of the still growing structures not to be distinguished from portions of the chalk rocks of the cretaceous formation. The fossils of this geological group are all of oceanic families, but of extinct species. Several species found in it in New Jersey are identical with those of the same formation in Europe; but the chalk is absent, though the other strata of limestone and green sand are recognized as those which elsewhere accompany it.—Chalk is employed

or a variety of purposes. It is easily converted into lime, in which state it forms a valuable fertilizer as well as cement. It is used as a marking material, and also for polishing metals and glass. When finely ground, and purified by washing and separating its harder particles, it is sold by the name of whiting, or Spanish white. The flints found in the formation were once much used in England in the manufacture of glass. In medicine, chalk, when thoroughly purified, is used under the name of prepared chalk, as an absorbent in diarrhoea; it is also an antacid, and is used to furnish carbonic acid gas; it is also a dentifrice.—French chalk is a pure variety of steatite or talc, used by tailors for marking cloth, and also mixed with cosmetics to give them body.—Black chalk is a variety of bituminous shale, made use of by artists for drawing.—Red chalk, or reddle, is an argillaceous red oxide of iron.

**CHALKLEY, THOMAS**, a preacher in the society of Friends, arrived in Philadelphia from England at the beginning of the 18th century, labored among the Indians at Coneastoga, near the Susquehanna, and died in Tortola in 1741, while engaged in spreading his doctrines in that island. He commenced the foundation of the library of the society of Friends in Philadelphia. His journal and a collection of his writings were published in that city in 1749, and in New York in 1808.

**CHALLENGE.** This word, which is now, except in a legal sense, used solely to imply a provocative summons to mortal combat, seems originally to have conveyed within itself the idea of an appeal, of an exception taken, or a claim asserted, and a disinclination to submit to some decision or arbitrament, rendered or about to be rendered, and removal of the subject matter of dispute to some other court or tribunal. Thus, in ancient times, the duello was never the mode of settlement of an angry personal dispute; but it was the trial of a solemn cause, before the actual court and in the presence of God. The challenger took exception to the truth of the allegation made against him by his adversary or opponent, and removed the adjudication of the cause, by appeal of challenge, from the human court of law, before which it was pending, to the divine court of equity, which was believed directly to interfere in the event of wagers by battle, and to give the strong arm and the sharp sword to the righteous party. (See **APPEAL**.) In the same sense, when a jury is challenged, whether by the array or by the poll, exception is taken to the fairness of the impanelling of the whole jury, or to the partiality of the individual juror; and, having taken exception, the person accused by his challenge removes the adjudication of his cause from that entire jury, or from that individual as part of it, to some other, by whom he believes he can have a fair trial, which he denies that he can as it is at present constituted.—A challenge as a preliminary to a duel is forbidden by the laws of most of the United States, and in the

American army by the articles of war. Any officer or soldier sending a challenge to another officer or soldier, or accepting a challenge if sent, incurs the penalty, if a commissioned officer, of being cashiered; if a non-commissioned officer or soldier, of suffering corporal punishment. Any officer, who knowingly or willingly suffers any person whatsoever to go forth to fight a duel, is punishable as a challenger, and seconds are not distinguished from principals. The punishment is at the discretion of the court-martial, of which if any member is challenged by a prisoner, that member withdraws, and the court is closed to determine upon the relevancy or validity of the challenge. If the challenge is disallowed, the member resumes his seat.—Challenge is also a hunting term, used of hounds or beagles, when, at first finding the scent of their game, they presently open and cry; the huntsmen then say they challenge.

**CHALMERS, ALEXANDER**, a Scottish biographer and journalist, born in Aberdeen, March 29, 1759, died in London, Dec. 10, 1834. The work on which his celebrity chiefly rests is the "General Biographical Dictionary," 82 vols., commenced in 1812, and completed in 1817. He also published annotated editions of the British essayists, of Shakespeare, and of the English poets from Chaucer to Cowper. In 1820 he published an abridgment of Johnson's English dictionary. During his long literary career he edited works enough to form a moderate-sized library. Among them were the complete writings of Fielding, Johnson, Bolingbroke, and Gibbon, beside individual biographies too numerous to recount. At different periods he was editor of the London "Morning Herald," associate editor of the "Morning Chronicle," and frequent contributor, under the signature of "Senex," to the "St. James's Chronicle," as well as to the critical and analytical reviews. He was a man of exemplary private character. The family of Chalmers still carry on an extensive printing business at Aberdeen.

**CHALMERS, GEORGE**, an English historian, born in 1742, died in 1825. He studied law at Aberdeen, and accompanied an uncle to the North American colonies, where he settled at Baltimore. At the commencement of the revolution, he returned to England. He wrote "An Estimate of the Comparative Strength of Great Britain," and "Political Annals of the United Colonies;" also a historical and topographical account of North Britain from the most ancient times, entitled "Caledonia," the lives of De Foe, Ruddiman, Allan Ramsay, Thomas Paine, and several others.

**CHALMERS, LIONEL**, a physician of South Carolina, and writer of several medical works, born at Campbelltown, Scotland, in 1715, died at Charleston in 1777. He emigrated from Scotland to Christ Church parish, S. C., but soon removed to Charleston, where he practised for 40 years.

**CHALMERS, THOMAS, D.D.**, a Scottish divine, born at Anstruther, in Fifeshire, March 17,

1780, died at Morningside, near Edinburgh, May 31, 1847. Early destined to the church, he was sent at the age of 12 to the university of St. Andrew's, where his favorite studies were mathematics, ethics, and political economy. In his 19th year he received a preacher's license in the Scottish church, but declined to assume a pastorate, and spent the 2 subsequent winters in Edinburgh, where he was employed in teaching, pursuing a wide range of study, and attending the lectures of Dugald Stewart, Robinson, Playfair, and other professors in the university. When in 1803 he was ordained minister of Kilmany, a small parish in Fife-shire, his mind was chiefly occupied with the study of natural science and with speculations on moral and social questions. Esteeming a day or two each week amply sufficient for the performance of all official clerical duties, he devoted the remainder of his time to science and scientific distinction, which were the objects of his highest interest and ambition. He varied his professional work by lecturing upon mathematics and chemistry at St. Andrew's, and while little known as a preacher was gaining reputation as an enthusiastic savant by the unwonted eloquence with which he imbued his scholastic prelections. Twice he sought in vain to exchange clerical for professional life, by becoming a candidate for the chair of natural philosophy at St. Andrew's in 1804, and for the mathematical chair in Edinburgh in 1805. His first effort in authorship was a pamphlet to prove that the vigorous prosecution of science was not incompatible with ministerial duties and habits. On Napoleon's menace of invading England, Chalmers joined a corps of volunteers not only as chaplain but lieutenant. In 1808, upon the alarm created by Napoleon's decrees against British commerce, he published his "Inquiry into the Extent and Stability of National Resources," to show that the apprehensions were groundless, and thus added political economy to the sciences in which he was proficient. He had already become a contributor to the "Edinburgh Encyclopædia," and the article on Christianity was assigned to him. It was in his studies while preparing this article, amid a series of domestic bereavements and a long and severe illness in 1809, which brought him near to the grave, that he experienced a great spiritual change. Then, for the first time, he thought, he saw the gospel of Christ in its true light, and he emerged from his trials with deepened views of the duties of the clerical office, declaring that the history of Pascal—who after a youth signalized by profound and original speculations had stopped short in a brilliant career of discovery, resigned the splendors of literary reputation, renounced without a sigh all the distinctions which are conferred upon genius, only to devote every talent and every hour to the defence and illustration of the gospel—was superior to all Greek and to all Roman fame. The pastor of Kilmany, when he resumed his duties, displayed a fervor in the

pulpit and in his household visitations which was new to his parishioners. Cherishing scientific and literary studies with the same ardor as before, and contributing to the "Christian Instructor" and the "Eclectic Review," yet all his thoughts were tempered by a deep sense of religion, and made subservient to the highest aims of life. Having before belonged to the "moderate" party in the Scottish church, he now ranked with the "evangelical" party, which was in the minority, and his pulpit eloquence attracted listeners from great distances, and made him famous through the south of Scotland. In 1812 he married; in 1818 his article on Christianity appeared in the "Encyclopædia," and was immediately republished in a separate volume, with additions, under the title of the "Evidences of Christianity;" and during the next 2 years he was busily engaged in organizing his parish into Bible and missionary societies, with a view to providing not only for the spiritual but also for the intellectual and economic wants of every individual in it. He published about this time review articles on missions and on Ouvier's theory of the earth. In 1815 he was invited to the pastoral charge of a parish in Glasgow, and during the 8 years of his residence in that city he enjoyed unrivalled renown as a pulpit orator. Jeffrey likened the impression produced by his sermons to "what one reads of as the effect of the eloquence of Demosthenes," and Lockhart was equally enthusiastic in his admiration. The "Astronomical Discourses," a series of week-day lectures on the connection between the discoveries of astronomy and the Christian revelations, were published in 1817, and rivalled the Waverley novels in popularity. Within a year nearly 20,000 copies of them were sold. His fame had meantime extended from Scotland to London, where he preached first this year. In a time of high political excitement all parties thronged to hear him, and judges so critical as Hazlitt, Wilberforce, Canning, Robert Hall, and Foster, could only applaud. Canning was moved to tears, and Wilberforce writes in his diary: "All the world is wild about Dr. Chalmers." The article on "Pauperism," contributed to the "Edinburgh Review," immediately after his return to Scotland, and the tract on the "Christian and Civil Economy of Large Towns," which soon followed, indicate what was then the direction of his efforts. It was his aim by a thorough organization to revive the old parochial system of Scotland, and by dividing the community into small manageable masses, to bring every member of it directly under educational and ecclesiastical influences. To apply his schema, he exchanged the Tron parish for the neighboring one of St. John's, in which out of 2,000 families there were more than 800 unconnected with any Christian church, and a countless number of untaught children. The entire management of the poor in that parish was committed into his hands as an experiment, and by strict parochial oversight the entire pau-

per expenditure was reduced in 4 years from £1,400 to £280 per annum. Every street and lane was visited periodically by his agents and teachers for economical, educational, and religious purposes. In the great labor of effecting this parochial arrangement, Edward Irving, then in the beginning of his career, was his assistant. Dr. Chalmers had never ceased to aspire to a professorship in one of the Scotch universities, and having successfully illustrated his reformatory views in his parish, in 1828 he accepted a call to the chair of moral philosophy in the university of St. Andrew's. In this office he remained 5 years, and its literary results were his "Lectures on Moral Philosophy," and his work on "Political Economy in connection with the Moral Aspects of Society," which were subsequently published. He had given a new intellectual impulse to the studies in his department, when in 1828 he was transferred from St. Andrew's to the wider sphere of the chair of theology in the university of Edinburgh, where he remained during the next 15 years. He carried his eloquence and enthusiasm into the class-room, which was filled not with students alone, but with clergymen of every church and gentlemen of literary and scientific distinction, anxious to hear systematic theology propounded by so skilful a teacher. In 1838 he published his Bridgewater treatise on the "Adaptation of External Nature to the Moral and Intellectual Constitution of Man;" in 1838 he delivered a course of lectures in London in defence of church establishments; and after a short visit to France, began an arduous tour through Scotland, to lecture and collect funds in behalf of the movement which he had initiated of so increasing the number of churches in the country, that no neighborhood, nor even individual, should be without the discipline of religion. Honors, such as had never before fallen to a Scottish ecclesiastic, were now crowning his labors. He was elected fellow of the royal society of Edinburgh, corresponding member of the royal institute of France, and in 1835 received the degree of D.O.L. from the university of Oxford. He had become the acknowledged leader of the evangelical party in the church of Scotland, and in 1832, when that party attained the majority, he had received the highest honor which that church can bestow, by being appointed moderator of the general assembly. In 1834 this assembly, under the auspices of the ruling party, after declaring it to be a principle of the church that no minister shall be intruded into any parish contrary to the will of the congregation, passed the famous "veto act," by which the displeasure of a majority of the male heads of families, being communicants, should be a bar to the settlement of a minister. This act was chiefly the work of Dr. Chalmers, and the resistance to it made him one of the champions of a violent controversy in the Scottish church, and finally the leader of a large secession from it. Several nominees having been rejected by parishioners, appeals

were made successively to the civil courts of Scotland and to the house of lords, and the result was that the veto act was declared to be contrary to the laws of the land. It was affirmed by Lords Brougham and Cottenham in their judgments that the church to which a minister was nominated had no legal right to look beyond his qualifications as to "life, literature, and morals." Thus the law of the church and that of the civil courts were at war, and confusion ensued. The crown rebuked and threatened the presbyteries if they refused to ordain vetoed nominees, and the churches were active in their own defence. The presbytery of Strathbogie having decided by a vote of 7 to 3 to ordain a nominee where an overwhelming majority of the congregation dissented, the churches stopped the ordination by suspending the 7 ministers who formed the majority. Then the civil court declared the suspension null, and forbade all other ministers to preach in their parishes. In opposition to ecclesiastical authority the 7 suspended clergymen proceeded with the ordination, and in opposition to civil injunction Dr. Chalmers and other distinguished ministers preached in the interdicted parishes. Collisions became frequent, and the legislature devising no way to heal the breach, a disruption became inevitable; and at the meeting of the general assembly, May 18, 1848, 470 clergymen, followed by a large portion of the people of Scotland, withdrew from the established church, and constituted themselves into the "Free Church of Scotland," electing Dr. Chalmers for their first moderator. He thus necessarily vacated his chair in the Edinburgh university, and the subsequent 4 years of his life were spent in effecting the organization and stability of the new church, in performing his duties as principal of the Free Church college which had been founded by its adherents, and in writing for the "North British Review," which was started under his superintendence. Never was his statesmanlike and indefatigable character more conspicuously displayed than in his conduct of the movement which led to the erection of the Free church, and of the proceedings by which that church was securely established. He had but just returned from London, which he had visited for the purpose of enlisting the principal statesmen in support of his views on national education, when in the morning he was found dead in his bed, with the utmost tranquillity of feature and without sign of pain or struggle. The collected writings of Dr. Chalmers form 84 large 12mo. volumes, and in them all the problems which most strongly agitated the public, and especially the religious community, in his time are discussed. They embrace also lectures and commentaries on portions of the Scriptures. Yet the most important results of his life are not contained in his books, but appear rather in the ardor and energy which, whether as preacher or teacher, he communicated to all with whom he came in contact, and in the important social and eccle-

siastical reforms which he inaugurated. Both as a preacher and thinker he dwelt on the broadest and cardinal views of things. Many of his sermons were said to contain not more than one or two ideas, around which his mind would revolve as on a pivot, presenting the same object in a series of new and beautiful forms. He always retained his broad Scotch accent, and his vehement and chivalrous resolution and philosophic temper were mingled with a guileless simplicity and a profound sympathy with the habits and feelings of the Scottish poorer classes.

**CHÂLON-SUR-SAÔNE**, a town of France, department of Saône et Loire (Burgundy), on the river Saône, 215 m. S. E. of Paris; pop. in 1856, 19,911. The town is very ancient, being the Cabillonum of which Cæsar speaks in his Commentaries. It was pillaged by the Vandals, the Huns, and the Saracens, burned in 834 by the emperor Lothaire I., suffered severely during the civil wars of the 16th century, and not a little from the invasion of the allies in 1814. It is at the head of navigation on the river Saône, and is one of the principal stations of the Paris-Lyon-Marseilles railroad.

**CHÂLONS-SUR-MARNE**, a city of France, on the river Marne (Champagne), 107 m. E. of Paris; pop. in 1856, 16,551. It was an important place when the Romans invaded Gaul, and was known as Duro-Catalaunum. Here in 274 the emperor Aurelian defeated Tetricus, his competitor. In its vicinity, probably between the villages of La Cheppe and Cuperly, was fought in 451 the tremendous battle in which the Romans under Aëtius, the Visigoths, the Burgundians, and the Franks united to oppose Attila. During the middle ages it numbered 60,000 inhabitants. During the civil wars of the 16th century, it burned the bulls of excommunication hurled against Henry IV. by Popes Gregory XIV. and Clement VIII. Châlons is the seat of a bishopric; beside a college, it contains several learned institutions, the most important of which is the school of arts and trades, where 450 pupils are maintained at the expense of the government. There are factories of coarse woollen stuffs and cotton hosiery.

**CHALOTAIS**, LOUIS RENÉ DE CARADEUC DE LA, or LA CHALOTAIS, attorney-general at the parliament of Rennes, born there in 1701, died in 1785, struck the first blow at the Jesuits in France by publishing, in 1761, *Le compte rendu des constitutions des Jésuites*. In 1765 he was arrested for having, in common with other members of the Breton parliament, refused to vote in favor of some financial measures of the government. The persecution to which he was then subjected was attributed to the hostility produced by his action against the Jesuits. While in prison he wrote an eloquent and vindictory memoir, and in the absence of writing materials, used a toothpick as a pen, and soot diluted in vinegar and sugared water as ink.

**CHALUS**, a small town of France, in the

department of Haute-Vienne (Limousin), on the Tardouère, 16 m. N. W. of St. Yrieix; pop. 2,200. It is divided by the river into an upper and lower town, in the former of which are the remains of the castle of Chabrol, in besieging which Richard Cœur de Lion was mortally wounded in 1199. Near it is the vast ruined fortress of Montbrun.

**CHALYBÆUS**, HENRICH MORITZ, professor of philosophy at the university of Kiel since 1839, born July 3, 1796, at Pfaffroda, in Saxony, graduated in 1820 in the divinity school of Leipzig, and officiated as private teacher and professor at Vienna, Meissen, and Dresden, until 1839, when, chiefly owing to the reputation established for him by his work "On the Historical Development of Speculative Philosophy, from Kant to Hegel" (Dresden, 1836), he received his present appointment at the university of Kiel. He has since published a variety of other writings, the most important of which is his "System of Speculative Ethics" (Leipzig, 1850). A later work, entitled "Philosophy and Christianity," appeared in 1853.

**CHALYBEATE** (Gr. *χάλυξ*, steel, and *Chalybes*, a Scythian race that worked in iron), a name now applied to waters and medicines which contain iron. It generally exists in them in the state of the carbonate of the protoxide, which is soluble so long as an excess of carbonic acid is present; as this is given off, the protoxide absorbs oxygen, and is converted into an insoluble hydrated sesqui-oxide, which falls down as a yellow ochreous powder. Chalybeate waters possess a styptic taste, and give the characteristic reactions indicative of the presence of iron by the addition of nutgalls and of ferrocyanuret of potassium. In this country springs that might claim this name are very common. The most important of them are those of Bedford and Brandywine in Pennsylvania. Arsenic and copper are found in Europe in the sediment of chalybeate springs. They appear to do no harm, on account of the antidotal properties of the oxide of iron.

**CHAM**, the pseudonym of Amédée de Noé, a French caricaturist, born in Paris, Jan. 26, 1819, who adopted the name Cham (Ham) as one of the sons of Noah, his father being M. de Noé (Noah). The son of a peer of France, he attended the polytechnic school; but following his artistic inclinations, he became a pupil of Delaroche and Charlet, and has acquired distinction as a caricaturist by his spirited and humorous contributions to the Paris *Charivari*, and by the publication of several books of caricatures.

**CHAMA** (Gr. *χαμα*, to gape), a genus of lamellibranchiate bivalves of the family *chamida*, which includes, moreover, the genera *monopleura* and *diceras*, all distinguished by inequivalve shells, one of which has 2 and the other 1 tooth; the foot is small, as also the corresponding pedal orifice. Having 2 adductor muscles, they belong to the dimyary group, and, like the kindred families of this group,

ave short siphons and are marked by a simple alial line. By Linnæus, Cuvier, and De Blainville, the genus was made of great importance, including many shells now transferred to other families. The giant clam, *tridacna gigas*, was one of these (see OLAM).

**CHAMBERLAIN** (Fr. *chambellan*, Lat. *camerarius*), an officer attached to royal courts, and to establishments of the great. The word means simply a person having care of apartments, and in its early acceptation was so employed. At present the duties of the office are nominal, or limited to such easy service as attending on the person of princes. Formerly the office had so many perquisites that it was sought by individuals of noble families, and finally became one of the grand offices of the crown. The title of "grand" was added to distinguish the chamberlains of sovereigns from those of lesser dignitaries. The earliest officer of this rank in France was appointed by Louis II. Thirty-nine chamberlains followed in succession till the time of Louis XIV., when the dignity was suffered to lapse. Napoleon revived the office. Formerly the chamberlain was entitled to the king's cast-off garments, as well as to the cloaks of vassals who came to pay homage to the sovereign. The office of lord high chamberlain ranks 6th in honor at the English court, there being also a lord chamberlain of the sovereign's household, with numerous subordinates. The grand chamberlains, both of France and England, assist in attending the sovereign for the ceremony of coronation. The chamberlain of the household superintends the interior of the palace, appoints the king's chaplains and tradesmen, and is also censor of plays. In Anglo-Saxon times the chamberlain was called the *camerarius*, and had charge of the king's treasure. The chamberlains of European courts wear a golden key as the symbol of their office. Various municipalities have an officer whom they style chamberlain, and whose duties have reference to the records or accounts of the body to which they are attached.

**CHAMBERLAYNE, EDWARD**, an English scholar, born at Odington in Gloucestershire, 1616, died at Chelsea, a suburb of London, 1708. Educated at Oxford, he made the tour of Europe during the civil wars. In 1679 he was appointed tutor to Henry, duke of Grafton, a natural son of Charles II., and afterward Prince George of Denmark, the husband of Queen Anne. He is best known by his *Angliæ Notitiæ*, or the Present State of England, of which the first edition appeared in 1687; Macaulay in his history makes frequent references to this book.

**CHAMBERLEN, HUGH**, an English physician, born in 1664, died June 17, 1728, was a graduate of Cambridge, where he obtained his degree of M.D. in 1690. The invention of an obstetric forceps is commonly attributed to him, though his father, Dr. Paul Chamberlen, is believed to have been the real inventor.

**CHAMBERS**, an E. co. of Ala., bordering on Georgia; area, 775 sq. m.; pop. in 1850, 28,960; of whom 11,158 were slaves. It is partly bounded on the E. by the Chattahoochee river, and intersected by the Tallapoosa. The surface is hilly, and most of the land productive, having yielded, in 1850, 17,442 bales of cotton, 876,088 bushels of corn, 166,075 of sweet potatoes, and 118,962 of oats. There were 41 churches in the county, and 1,466 pupils attending public schools. Capital, Chambers Court House.

**CHAMBERS, EPHRAIM**, an English cyclopædist, born at Kendal, in Westmoreland, died at Lillingston, May 15, 1740. The son of a Presbyterian freeholder, he received a commercial education, and formed the project of the cyclopædia which bears his name while apprenticed to a globe-maker in London. Some of the articles are said to have been written while he tended his master's counter. The 1st edition of his "Cyclopædia" was published by subscription in 1728, in 2 vols. folio; the 2d enlarged edition in 1738, and the 3d in the following year. This work was avowedly the basis of the more extended cyclopædia of Rees, and was early translated into the French and Italian languages.

**CHAMBERS, GEORGE**, an English artist, born near the end of the last century at Whitby, in Yorkshire, died in London, Oct. 28, 1840. The son of a poor seaman, at the age of 10 years he sailed in a trading vessel as cabin-boy, and was soon noted among his messmates for his rude sketches of ships and marine views. With the determination to become a marine painter, he left the service, and after 3 years' private practice, during which he supported himself as a house-painter, he went to London, and was employed by Mr. Horner for 7 years to assist in preparing the panorama of London exhibited in the Colosseum. He afterward obtained commissions for marine sketches from many distinguished persons, and painted the "Opening of New London Bridge" for King William IV., and a view of "Greenwich Hospital" for Queen Adelaide. His appointment as marine painter to their majesties had opened to him a way to fame and fortune, when his delicate physical constitution failed him. His works, several of which are naval battle-scenes, are highly valued.

**CHAMBERS, SIR WILLIAM**, an English architect, born of a British family at Stockholm, in Sweden, in 1726, died in London, March 8, 1796. He was educated at Ripon, in Yorkshire, and while very young went as supercargo to the East Indies, resided for some time in China, and brought back many drawings of Chinese buildings and costume, which were afterward published. He then devoted himself to the study of architecture, and on returning from travels in France and Italy was appointed drawing master to the prince of Wales, afterward George III. He laid out the royal gardens at Kew in the Chinese style, and built the villa of the earl of Besborough at Roehampton, in the Italian



style, a mansion for Lord Abercorn, near Edinburgh, and houses for Lord Melbourne and the earl of Gower, at Whitehall and in Piccadilly. His masterpiece was Somerset house in London, which he rebuilt in 1775. He published in 1759-'68 a "Treatise on Civil Architecture," which has been several times reprinted; in 1772, a "Dissertation on Oriental Gardening." —MONTAGU, grandson of the preceding, an English lawyer and statesman, born at Hertford, in Huntingdonshire, in 1800. He was educated at the military college at Sandhurst, and served as an officer in the army from 1815 to 1818, when he retired upon half pay. He was called to the bar in 1828, became queen's counsel in 1845, and has gained distinction in the house of commons, of which he was elected member for Greenwich after Vice-Admiral Dundas assumed the Mediterranean command.

CHAMBERS, WILLIAM AND ROBERT, Scotch publishers and authors, the editors of "Chambers's Journal," and of many works of a popular and instructive character, are natives of Peebles, a small town on the Tweed, where William was born in 1800, and his brother Robert in 1802. Thrown in boyhood, after receiving the education which the schools of Peebles furnished, upon their own resources, William was apprenticed to an Edinburgh printer, while Robert, failing to get the collegiate education which he had desired, entered upon the career of bookseller on his own account. Until 1832 the brothers conducted separate establishments, and their struggles during the period when the yet anonymous Waverley novels, the criticisms of Jeffrey, and the sketches of Christopher North were distinguishing Edinburgh as a literary centre, are eminent examples of energy and diligence. William eked out the profits of a small trade by working at case and press himself, and in 1830 published his "Book of Scotland," an elaborate and comprehensive account of the usages and institutions, the schools, social system, and religious and civil organization of that country. Meantime Robert, sharing in the enthusiasm which was then introducing the national element so largely into Scottish literature, had published in 1824 his "Traditions of Edinburgh," an authentic, detailed, and amusing account of the old memories and associations with which the various localities of that capital are rich. It was dedicated to Sir Walter Scott, who had communicated to him interesting materials for it. This was rapidly followed by his "Popular Rhymes of Scotland," "Picture of Scotland," "History of the Rebellion of 1745-'46," "Life of James I.," and 8 vols. of "Scottish Ballads and Songs." In 1829 the brothers united their efforts in preparing the "Gazetteer of Scotland," published in 1832, which was written for the most part by them in the brief intervals of business. In 1832 appeared the first number of the "Edinburgh Journal," designed "to supply intellectual food of the best kind, and in such a form and at such

a price as must suit the convenience of every man in the British dominions." It immediately attained a circulation of over 50,000, whereupon the brothers united their places of business into one establishment. This journal has remained till the present time one of the most widely circulated of British periodicals. In 1834 the Messrs. Chambers began the publication of a series of historical and scientific treatises, written in a popular style, under the title of "Information for the People," the average sale of the numbers of which was over 100,000 copies. They were followed by a "Cyclopædia of English Literature," at once historical and biographical, with well-chosen extracts from the works of the principal British authors in every age; the "People's Edition of Standard English Works," "Papers for the People," "Miscellany," "Repository of Instructive and Entertaining Tracts," and other collections, all of which were in a cheap form and widely read. Chambers's "Educational Course," which has been completed by degrees, includes works in almost every branch of knowledge, and covers the entire ground from first lessons to accomplished scholarship. Mr. Robert Chambers has devoted much attention to literary and scientific pursuits, and among his later productions are the "Life and Works of Burns," 4 volumes of "Essays," and a handsome volume entitled "Ancient Sea Margins, as Illustrative of Changes of the Relative Level of the Sea and Land." To him also has been attributed the authorship of the "Vestiges of the Natural History of Creation," a work remarkable for the force with which it advocates the so-called development theory. Mr. William Chambers has contributed numerous essays to the "Journal," has given his impressions of a tour in the United States in a work entitled "Things as they are in America," and has since published a work on "Improved Dwelling-houses for the Humbler and other Classes in Cities." The publishing house of the Messrs. Chambers is one of the largest in Scotland, and employs nearly 200 persons.

CHAMBERSBURG, a thriving borough, and capital of Franklin co., Penn.; pop. about 5,000. It is pleasantly situated on Conecocheague creek, and at the junction of the Cumberland Valley with the Franklin railroad. Good turnpike roads connect it with Baltimore, Pittsburgh, and Philadelphia, and it also communicates by railroad with Philadelphia, Harrisburg, &c. The houses are mostly of brick or stone, and the general appearance of the town is neat and comfortable. The surrounding country, which forms part of the great limestone valley at the S. E. base of the Blue mountains, is populous and highly cultivated. There are manufactories of cotton, wool, flour, paper, and iron.

CHAMBERTIN, a famous vineyard of France, department of Côte d'Or, a few miles N. E. of Beaune. It is about 15 or 20 acres in extent, divided among several proprietors; its yearly produce, at an average, does

not exceed 150 pipes of red wine, which ranks among the first growths of Burgundy.

CHAMBERY, or SAVOY PROPER, the most level and fertile part of Savoy, an administrative division of Sardinia, and one of the 7 provinces into which the duchy of Savoy is divided, contains 4 districts, viz.:

	Area, sq. m.	Pop.
Chambery.....	634	152,463
Upper Savoy.....	377	50,373
Moriana.....	793	64,280
Tarentasia.....	706	45,723
Total.....	2,515	313,809

—CHAMBERY, the capital of the above-described division and province, and of the whole duchy of Savoy, and the most important town in Savoy, is situated in a fertile valley on the banks of the Leyasse and the Albane, affluents of the lake of Bourget, on the Victor Emmanuel railway from St. Innocent to Aix and St. Jean de Maurienne, connecting Turin with Geneva, Lyons, and Paris, 110 m. W. N. W. of Turin. Pop. about 17,000. It has long been renowned for its manufacture of silk gauze, and contains also manufactories of cotton, tanneries, &c. It trades in grain, silk, wine, liquors, cattle, and copper, and has 6 annual fairs. The villa *Les Charmettes*, once the residence of Mme. de Warens, which has been made celebrated by Rousseau's "Confessions," is situated near this city.

CHAMBLY, a S. co. of Canada E., on the right bank of the St. Lawrence, opposite the island of Montreal, and extending E. as far as the river known by the names of Chamby, Richelieu, Sorel, and St. John. Area, 211 sq. m.; pop. in 1851—2, 20,576. It is traversed by the Champlain and Montreal, and the Grand Trunk railways. The staples are grain, hay, tobacco, flax, and wool, and the productions in 1851 amounted to 115,287 bushels of wheat, 8,596 of barley, 243,819 of oats, 5,461 of Indian corn, 30,667 tons of hay, 12,502 lbs. of tobacco, 33,903 of wool, and 245,094 of butter. There were 7 grist, 3 saw, and 2 fulling mills, 1 woollen factory, 4 tanneries, 2 foundries, 1 glass factory, 1 paper mill, 41 schools, and 18 churches.—CHAMBLY, a parish and village of the above described county, situated on the W. side of Richelieu river, and connected by canal with St. John's. It has the remains of a fort erected by the French in 1711, and contains a woollen factory, 4 grist mills, about 56 stores, 14 schools, 2 churches, a convent and female academy with 60 pupils, an asylum for deaf and dumb male orphans with 15 inmates, a college founded in 1825 and having 8 professors and 184 students. Pop. of parish and village in 1851—2, 4,371; of village alone, 698.

CHAMBORD, a village, pop. about 400, in the French department of Loire-et-Cher, 9 m. E. of Blois. It is noted for a château of its own name, surrounded by a beautiful park, 21 m. in circumference. The counts of Blois had here a hunting lodge and pleasure house built in 1090. It was added to the possessions of the

crown by Louis XII., and torn down by Francis I. to make way for the present magnificent structure, which was commenced in 1528, after designs by Primaticcio. For 12 years Francis prosecuted the work with great vigor, and died leaving it unfinished and his treasury halfempty. It was continued with less activity by Henry II., Charles IX., Henry III., Louis XIII., and Louis XIV., but the original plans were never carried out. The style of architecture, which marks the transition from the fortified castle to the Italian palace, is a fine specimen of the prevailing taste of the 16th century, and though fantastic in some details, is, on the whole, grand and imposing. The material is a very dark stone. From a solid basement, flanked by 6 round towers, each 60 feet in diameter, rise clusters of pyramids, cones, and turrets, with a large central tower crowned with a beautiful lantern, on which is a stone figure 6 feet high of the lily of France. This tower contains a double spiral staircase, so curiously contrived that persons ascending never meet those descending. There are 440 chambers, once decorated by the pencil of Cousin and the chisels of Bontemps, Goujon, and Pilon. The stables have stalls for 1,200 horses.—The early history of Chambord is little more than a chronicle of royal debaucheries. Built, it is said, to commemorate the passion of Francis for the countess de Thoury and the fair chatelaine de Montfauult, and exhibiting in the form of caryatides the features of 2 of his other mistresses, the duchess d'Étampes and the countess de Châteaubriant, it preserved its character under several succeeding reigns. It was here that the beautiful but faithless Diana of Poitiers achieved more than one of her conquests, and the letters H. and D. entwined with a crescent, which still fill the compartments of the vaulted ceilings, attest her ascendancy over Henry II. Charles IX., Louis XIII., and Louis XIV. held their court here with equal licentiousness and splendor; and at a fête given by the last named monarch in 1690, one of the grand corridors was converted into a theatre, in which Molière gave the first representation of his *Bourgeois gentilhomme*. Chambord afterward became the residence for 9 years of Stanislas Leszczyński, king of Poland. In 1745, Louis XV. bestowed it upon Marshal Saxe, who restored much of its former brilliancy and lived there in military state, attended by 2 regiments of his lancers. After his death, and that of his nephew the count de Frise, the château reverted to the crown; it was bestowed upon the Polignac family by Louis XVI. in 1777, plundered by the mob in 1792, and sold as national property. Napoleon gave it to Marshal Berthier in 1809, from whose widow it was purchased by the royalists in 1821, and presented in the name of the nation to the duke of Bordeaux.

CHAMBORD, HENRI CHARLES FERDINAND MARIE DEUDONNÉ D'ARTOIS, count of, born in Paris, Sept. 29, 1820, the only son of the duke of Berry, and therefore the last remaining soion

of the great family of Bourbon, which for centuries gave kings to France, and whose members still reign over Spain and Naples. It is a general belief that the chief object contemplated in the murder of the duke of Berry by Louvel was the extinction of his race, which would then have been succeeded on the throne by the branch of Orleans. But at the time when the crime was perpetrated, the duchess was pregnant, a fact which, becoming known soon after, revived all the hopes of the royalists. Still, a contrary chance existed by the Salic law, which excludes women from the succession to the French throne, not to speak of the different attempts made during the pregnancy of the duchess to secure by an accident what crime had failed to accomplish. However, 7 months after the murder of her husband, the widow gave birth to a son. Hence the name *enfant du miracle* by which he was first celebrated by poets, and afterward designated by the partisans of his dynasty. Such was, in fact, the importance attached to his birth, that the feminine modesty of the duchess had to yield to political considerations, and her confinement was witnessed not only by the princes and high dignitaries of the state, but even by citizens who happened to be on duty as national guards in the palace. In spite of all, an insidious protest was published in England, in the name of the duke of Orleans, against the authenticity of an event by which he seemed to have lost a crown. True, the alleged author affected to deny, with a virtuous indignation, any complicity in the publication; but when the document was reprinted after the revolution of 1880, he did not choose to contradict it again, and some doubt may be entertained as to the sincerity of his first denial. The royal child was hardly 10 years old when the revolution of 1880 drove the Bourbons, now for the 8d time, out of France. Charles X. having abdicated, Aug. 2, 1880, and the duke of Angoulême having abandoned his right of succession in favor of the young prince, the latter was constrained to follow the exile of his family. The title of duke of Bordeaux had been given him at his birth, as an acknowledgment of the devotion by which the city of Bordeaux had distinguished itself in 1814 in favor of the cause of the Bourbons. The young exile now changed it for one more appropriate to his present fortune, and henceforth assumed the name of count of Chambord, from the castle and domain of Chambord, presented to him May 21, 1821, by public subscription in France, and still his property. What his education was may be inferred from the men to whom it was intrusted. The old king Charles X., having proved unable to keep the crown on his head, was not likely to teach his grandson how to regain it. The duke of Angoulême was known to possess far more honesty than genius; while those short-sighted courtiers, whose fatal advice had led the dynasty to ruin, were now selected to inculcate in the mind of the young pretender the ideas and prin-

ciples by which he was to govern his conduct. Thus, as well in exile as in France, he was surrounded exclusively by men most honorable by character, and noble by birth, but so much absorbed in the traditions of the past as not to accept or even understand the exigencies of the present. To them the theory of divine right remained the palladium of the French monarchy, and the fact of the sovereignty of the people a mere rebellion against the law of God. The first tutor of the young prince was the baron de Damas; he was succeeded by Gen. d'Hampoul, who was supplanted by Gen. Latour-Maubourg and others. In France, meanwhile, the legitimist party made it a point of honor to abandon at once all their public offices by tendering their resignation, or refusing the oaths required from them by the new power. In this manner they protested against an order of things which, according to their wishes and calculations, was soon to give way from its own radical incapacity. The vacancies were soon filled by persons either adverse or indifferent to the Bourbons. Men initiated into public affairs by the struggles of the liberal party under the restoration, took in hand the management of the government, aided by those who are always ready to tender their services to the ruling power. A new generation sprung up, ripened by the public commotions, and it became apparent that the government which had issued from the revolution of July could go on without the legitimists, and notwithstanding the difficulties inherent in its origin, and its false position toward the democracy. The system of abstention adopted by the partisans of the Bourbons had simply given up the game. However, this policy was not pursued without strong opposition in the party. Many among the men then sometimes called *Henriquinistes* had a different idea of the interests of their cause. They openly advocated taking the oath, and participating actively in public affairs. Some influential men accepted and solicited the legislative trust, and formed in the chamber of deputies a small minority, voting consistently with the opposition against all the successive cabinets—the only signs of life given for years by the legitimists, aside from some unsuccessful attempts at civil war in the Vendée and Brittany. In fact, the party was now broken up by internal dissensions. In 1839 the count went to Italy with his mother, and was received with great distinction by Pope Gregory XVI. After the death of the duke of Angoulême, in June, 1844, it was thought advisable to awaken the public attention by some manifestation likely to produce an effect in France. In 1845, the pretender, who had successively resided in Scotland, Bohemia, and Illyria, arrived in London. A costly mansion in Belgrave square, where he took up his abode, became at once the goal of numerous pilgrimages among the faithful. The proximity of London, and the ease and cheapness of going there, were so many inducements for those who

would have been otherwise prevented from paying the tribute of their homage to their legitimate prince; and for some time, the capital of the British empire was peacefully invaded by crowds of adherents to the principle of legitimacy and devoted partisans of its representative. Five members of the chamber of deputies did not consider it irreconcilable with their oath to play a prominent part in this manifestation against the established government of France. The majority of their colleagues thought otherwise; and after an animated and protracted discussion, censure was inflicted on their conduct by the address of the chamber in answer to the speech from the crown. The disgraced deputies appealed from the judgment of their peers to the decision of their constituents, who sustained them by a reflection, and the agitation soon subsided, without any great benefit or damage to any body. On Nov. 16, 1846, the count of Chambord married Maria Theresa Beatrice Gaëtana, princess of Modena, born July 14, 1817, and therefore 8 years older than himself. This union has remained sterile, no child having been born of it to save the legitimist cause from annihilation. It seems, in fact, as if Providence had doomed to destruction the very party which invokes most tenaciously and exclusively the protection of its divine right. The political inheritance of the Bourbons is destined to pass to the young count of Paris, the grandson of Louis Philippe, whom the legitimists regard as a usurper.—After the death of Louis Philippe in exile, the community of ill fortune suggested to the vanquished on both sides the idea of a reconciliation between the members of the two royal families. Some of them consented; messages and visits were exchanged; and some interested politicians exulted in what they considered already a decisive step toward a better state of things. Indeed, the count of Chambord seemed decided to take no active measure toward regaining the crown for himself. When an opportunity, apparently most favorable, had presented itself after the bloody days of June, 1848, in Paris—and later, during the agitations and disquietudes of the republic—the inactive pretender had let pass the chance, which another claimant took advantage of, boldly to build up an imperial throne. It was against this intrusive interest, openly at work for the foundation of a new dynasty, that the political fusion of the two branches of the Bourbon family was aimed. The plan failed by the decided opposition of the duchess of Orleans, whose influence with her son was paramount. Faithful to the memory of her husband, the noble widow conformed herself to the instructions of the duke of Orleans, who had written in his last will: "Whether a king, or the unknown and obscure defender of a cause to which we all belong, the count of Paris ought, before everything, to be a man of his time and of the nation—a Catholic, and the passionate, exclusive servant of France and the revolution." How and on what terms the pas-

sionate and exclusive servant of the revolution could join in a common cause with the representative of the principle of legitimacy, irrespective of the popular sanction, it was impossible to understand. Some other obstacles also arose from delicate questions started in the discussion of a common political platform. The royal cousins could not agree, nor their counsellors, on the adoption of an intended national flag, the one party advocating the white banner, the other standing by the tri-color. So the proposed scheme was abandoned after some useless efforts, based more on common interest than on mutual sympathy.—The count of Chambord resides alternately in Venice, where he owns the beautiful Cavalli palace, and in the castle of Frohsdorf, near Vienna. In the summer he is accustomed to repair to some watering place, like Ems, Wiesbaden, &c., in the neighborhood of France, where he receives the disinterested respects of numbers of his faithful partisans, who are delighted with his affable and graceful reception, and charmed with the happy qualities which he possesses as a man. Were it not for certain unfortunate influences which have constantly surrounded and still surround him, his natural gifts would have shown more advantageously; as it is, through the delusions of his present life, and the ordeal of contemporary events, each passing day is more likely to leave with him a new regret than to bring him a new hope.—Physically the count of Chambord is rather below medium stature, with a short neck, broad shoulders, and a full chest, conveying the impression of strength rather than of dignity. At the age of about 15 years, he had a severe fall from his horse, from the lameness caused by which he has never entirely recovered. He is nevertheless very fond of manly sports, and pursues them in a princely manner. His features are handsome, of the Bourbon type, with blue eyes, light hair, mustache, and whiskers. His fortune, which was originally large, has been much increased by his marriage with one of the richest princesses of Europe, and by the inheritance of the duchess of Angoulême, from whom he received the estate of Frohsdorf, which belonged originally to the duke of Blacas.

CHAMBRAY, GEORGES DE, marquis de, a French general, born in Paris in 1788, died about 1850, served in the Napoleonic wars, fell into the power of the Russians, was banished to the Ukraine, and not permitted to return to France until after the fall of Napoleon. From 1828 to 1829, he filled high military positions at Vincennes and Perpignan. He wrote various works on military subjects. A 2d edition of his *Philosophie de la guerre* appeared in 1835, and a "Life of Vauban," written by him, appeared in the *Plutarque Français*. His most important production is his *Histoire de l'expédition de Russie*, which appeared in 1837, and has since passed through several editions.

CHAMBRE ARDENTE. Originally this name was applied in France to courts of law, hung with black, but lighted by torches, where criminals

of the highest rank were tried. Subsequently any extraordinary court of law was called *chambre ardente*, as for instance the tribunal which in 1585, at the dawn of the reformation, was established by Francis I. for the special purpose of passing sentence on heretics. Henry II., on his entry into Paris, July 4, 1549, was present in the *chambre ardente* while several heretics were doomed to the flames. Under Louis XIV., the *chambres* were reopened in 1679, for the purpose of trying the poisoning cases; but in 1680, after the execution of Madame Voisin, the *chambres ardentes* were again closed. The extraordinary courts under the regency where the trial of the farmers of the public revenue took place, and those instituted for the registration of the shares of the financier Law, were also called *chambres ardentes*.

**CHAMELEON** (*chameleo*, Brogn.), a genus of saurian reptiles, inhabiting the warmest parts of Africa and India. The genus is characterized by teeth on the upper edge of the jaws, toes united into 2 groups, prehensile tail, and body compressed and covered with squarish scales, with or without a series of spiny processes along the back, belly, chest, and tail. The skin is shagreened with small scaly grains, the back is sharp, the tail round and slender. There are 5 toes on each foot, divided into 2 parcels, one of 2 and the other of 3, each united by the skin as far as the claws. The tongue is fleshy, cylindrical, and capable of an elongation of 6 or 7 inches; the teeth are trilobed; the eyes are large, almost covered by the skin, except a small hole opposite the pupil, and are capable of movements independent of each other. The back of the head is raised in a pyramidal form; there is no visible external ear; the first rib is united to the breast-bone, the rest being continued to their fellows of the opposite side, enclosing the abdomen in an entire circle. The lungs are large and admit of great inflation. The most common species is the *chameleo vulgaris* (Lac.), so well known to travellers in Egypt and northern Africa. Many other species are described from the Sechelles islands, Isle of Bourbon, Isle of France, and Cape of Good Hope. The chameleon is well described by Aristotle in his "History of Animals." The name is derived from the Greek, and signifies little lion, or, as some maintain, camel lion. There is probably no animal about which more prejudices and errors have existed from the remotest antiquity than the chameleon. The 2 most remarkable faculties attributed to it are those of being able to live on air, and of changing color according to the objects to which it comes near; the first it certainly does not possess, and the latter but partially. Like all other reptiles, they can remain for months without eating, which, with their sudden changes of bulk, gave rise to the opinion that they lived on air. They eat flies and other insects, which they seize by means of their long and sticky tongues, the only part of their bodies which they move with any vi-

vacity. It is true that the chameleon changes its colors with great rapidity, but the changes are not determined by the colors of surrounding objects, nor by the greater or less amount of blood sent to the skin. Other reptiles possess this power of changing color, as also do many fishes, as the coryphæna (vulgarly called dolphin), and many of the mollusks (as the argonaut and the squid). It has been ascertained by the experiments of Dr. W. I. Burnett and others, that the varieties of color in the squid are due especially to changes in the surface of the skin from the voluntary contractions of the muscular fibres in the dermis, modifying the reflections from the pigment spots as well as from the colorless portions of the skin. It is probable, considering the scaly character of its skin, that similar surface reflections, from contraction of the muscular fibres of the dermis, are the causes of the changes of color in the chameleon; and that the inflation of the lungs and body, and the changes in the cutaneous circulation, are merely secondary agents. The natural color of the animal is a fine green, tinged in some parts with reddish brown and grayish white; from this the hues vary to deep bluish green, yellow, blackish, and various shades of gray; the colors are the brightest in the warmest and sunniest weather. They are often seen of the same colors as surrounding objects, which they doubtless assume instinctively as a means of protection against their numerous enemies. The chameleon can also inflate its body, even to its feet and tail, by slow and irregular motions; this in a moderate degree may aid the muscular contractions of the skin in the production of its brilliant surface changes. The chameleon moves very slowly; it will remain for days on the branch of a tree, to which it fixes itself very firmly by means of its peculiarly divided feet and prehensile tail. This slowness of motion, and the absence of all defensive and offensive weapons, render them an easy prey to their enemies. Whether upon a tree or on the ground, it is a most disagreeable and awkward animal. The native Africans and Asiatics consider the chameleon a harmless creature, and even pet them in their dwellings on account of the insect pests they destroy. When kindly treated they are very gentle, but they readily fight with each other, slowly opening and shutting their jaws, like the blades of scissors, in a most ludicrous manner. The female lays about a dozen eggs, which she deposits in the sand, leaving them to be hatched by the heat of the sun. Were it not for their great fecundity the species would soon be destroyed. From its sudden changes in color and size, the chameleon has from time immemorial been selected by authors as the emblem of the hypocrite, the wily flatterer of the great, the ambitious demagogue, the cautious knave, and the sly inconstant persons, who, from mere indolence or steadfastness of purpose, are "all things to all men."

**CHAMIER, FREDERIC**, an English novelist, born in London in 1796. His forte lies in sea stories of the Marryat school. The most popular of his works are "Ben Brace," "The Drehtusa," "Trevor Hastings," "Passion and Principle."

**CHAMISSE, ADALBERT VON (LOUIS CHARLES ADELAIDE DE CHAMISSE DE BONCOURT)**, a German author, born Jan. 27, 1781, at the château of Boncourt, Champagne, France, died in Bern, Aug. 21, 1888. At 9 years of age he accompanied his family to Berlin, and entered the Russian army as lieutenant in 1798, but left it in 1806. He returned to France and devoted himself to the study of natural history, his acquaintance with Madame de Staël and her learned circle having turned his attention in that direction. From 1815 to 1818 he accompanied the expedition set on foot by Count Romanzoff in a voyage of discovery around the globe. On his return to Berlin he received an appointment at the botanical garden. He published 2 botanical works, and 2 works connected with his journey round the world, also a treatise on the Hawaiian language. In conjunction with Gaudy he translated a selection of Béranger's songs into German. Many of his lyrical productions appeared in the *Musenalmanach*, which he and Varnhagen von Ense edited from 1804 to 1806. His literary reputation in Germany rests more upon his lyrical poems, which make up one-third of the 6 volumes of his collected works. Out of Germany he is principally known as the author of "Peter Schlemihl"—the story of a man who had lost his shadow. This book was published in 1814, through the agency of his friend Fouqué, and passed through many editions.

**CHAMOIS**, or *Gems* (*antilope rupicapra*, Pallas), the mountain or Alpine antelope of Europe, and the only animal of that geographical division which partakes in any degree of the character of the antelopes. It is found in the Pyrénées, the Alps, the Carpathian and Precian mountains, the ranges of Caucasus and Taurus, the heights of the Himalayas, and perhaps in other situations of similar character. The chamois is rather more than 3 feet in length, and a little above 2 feet in height. Its smooth black horns are about 6 inches long, rising nearly perpendicularly from the fore part of the brow, abruptly hooked backward at their extremities, and nearly parallel through their entire extent. It is beardless, but the body is covered with a short thick fleece of fine wool, to protect the animal from cold, and also with long and silky hair of a deep brown color in winter, brown fawn color in summer, and slightly mixed with gray in spring. The head is silvery yellow, the inside of the thighs and ears white, and the tail black. A small black band winds from the corner of the mouth around each eye. The kids are of a deep yellow color. Impatient of heat, the chamois remains in the summer on the loftiest ridges, or in snowy valleys, clipping for its food

the mountain herbs and the tender shoots of shrubs, and rarely drinking. It is remarkable for its agility, and for its keenness of sight and smell. It scents a man at a long distance, is at once thrown into great agitation, and flies at its utmost speed on his first appearance. It bounds from rock to rock with an admirable grace, and ascends and descends cliffs which few other animals would attempt. It is more closely allied to the prong-horn (*antilope Americana*) than to any other species of antelope. The structure and form of their horns are nearly similar; and the pelage of each of the two animals is peculiar, though not identical. It is, in some respects, a connecting link between the true antelopes and the goats, although far more closely allied to the former. The chamois is easily tamed, and becomes very familiar and fond of the persons who feed it. The venison is but moderately good, bearing some resemblance to that of the roebuck, but inferior in flavor and quality. The skin is dressed into a fine light leather, in use for undergarments, and for cleaning plate, glass, and the like; though but a small quantity of what is sold as chamois, or, as it is usually termed, shammy leather, is actually made from the hide of this animal.—Of all sports, the pursuit of the chamois is the most difficult and perilous. Even the trade of the samphire gatherer, or that of the egg plunderer of the Hebrides and Orkneys, sinks into insignificance and tameness beside that of the chamois hunter, amid the interminable and awful solitudes of the upper Alps. Of all sports, also, it is the least profitable, so rare is the beast becoming even in his most difficult and remotest haunts, so small, comparatively, are the chances of success, and so little the value of the game when taken.

**CHAMOMILE** (Gr. *χαμαί*, on the ground, and *μηλον*, apple; *anthemis nobilis*, Linn.), a plant indigenous in the south of England, and widely cultivated in gardens for medical use. Its leaves and daisy-like flowers emit a strong perfume when trodden upon. The flowers have long been famous as an aromatic bitter. A tepid infusion of them, known as chamomile tea, is often employed as an emetic. They are used externally as fomentations in colic and intestinal inflammation. Chamomile is naturalized in many parts of Europe, and in the state of Delaware.

**CHAMORRO, FAUSTO**, a soldier and statesman of Central America, born in the city of Guatemala in 1806, died March 12, 1865. He belonged to one of the oldest and most wealthy Nicaraguan Spanish families. In 1828, when a student at the university, he fought as a volunteer against the insurgent soldiers, who were endangering the first national constituent assembly. His public life began in 1836 as a representative to the legislature of Nicaragua. As a member of the constituent assembly, which met in 1838 for the reform of the organic law, he aided in establishing the oriental university at Granada. He was elected, under the

constitution of 1838, a senator for 4 years. When, in 1843, an attempt for a partial confederation was made by the states of Salvador, Honduras, and Nicaragua, he was chosen supreme delegate with executive power. In this difficult office he was able to prevent a war declared against Guatemala; but, being insufficiently supported, he retired in 1844. As governor of the oriental department of Nicaragua in 1845, and as manager of the financial affairs of the state in 1846, he sought to enforce order, economy, and accountability; but his efforts were resented, and he resigned when Castellon became the head of the ministry. In 1848 he was a member of the constituent assembly convened at Managua, and in 1849 the adverse parties of Granada and Leon united in electing him second in the military expedition under Gen. Muñoz. He was soon after appointed civil and military governor of the meridional department of Nicaragua, and signalized his administration by the encouragement which he gave to the plan of interoceanic communication by way of the lake of Nicaragua. In 1851, Pineda being elected supreme director, Chamorro became secretary of the treasury, and Castellon of foreign affairs. Nearly \$90,000, out of a revenue of \$120,000, was expended in maintaining a military force; and the recommendation of Chamorro that this item be reduced produced discontent on the part of the soldiers. He sought to secure the harmony of the ministry by resigning his place; but (Aug. 4, 1851) a rebellion broke out, which ended in the expatriation of Pineda. The legislative chambers at Managua immediately elected Chamorro general-in-chief, with powers to collect a force and march upon the malcontents. The revolutionary attempt was chiefly supported by Gen. Muñoz, who was obliged after one victory to surrender with his officers and men to Gen. Lope, by whom they were transferred to Gen. Chamorro. Though exposed to the penalties of treason, the safe conduct which was guaranteed to them at their capitulation was respected, and they were permitted to leave the state. In 1853, Gen. Chamorro was chosen to succeed Pineda as supreme director, and he strengthened public credit by his plans of reform. A conspiracy was detected in 1854, and the conspirators, having taken refuge in Honduras, soon invaded Nicaragua with a large force from that country. They were met by President Chamorro, who was defeated and obliged to fall back upon Granada. There he was besieged 281 days, when the insurgent force retired, Feb. 10, 1855, leaving the regular government in possession of every point except Leon and its neighborhood. The civil war was continued under Castellon, Muñoz, and others, after the death of Chamorro.

CHAMOUNI, CHAMONIX, or CHAMONI, a valley of the Pennine Alps, forming the upper part of the basin of the Arve, in the Sardinian province of Fanoigny, Savoy, 8,425 feet above the level of the sea. It is about 12 m. long, from 1 to 6 m. wide, and contains in its 8 parishes a

population of 3,800. Mont Blanc bounds it on the S. E., Mont Brevin and the Aiguilles Rouges enclose it on the N. W. The Arve enters it at the N. end, flows through it, and passes out by a narrow gorge toward the S. W., through which also runs, at a great height above the stream, the high road to Geneva. With the canton Valais it communicates through the romantic passes of the Col de Balme and the Tête Noire; the dangerous footpaths of the Col de Géant, a favorite route for smugglers, lead into Piedmont, and there are one or two other difficult but picturesque roads by which the valley may be left. The soil is not fertile, but by careful cultivation is made to produce good crops of grain and fruit, in tilling which, rearing bees (the perfectly white aromatic honey of Chamouni enjoys a great reputation) and cattle, making fancy articles of carved wood, spinning and weaving, the inhabitants find their chief employment. The winter, which lasts from October to May, is very severe; snow lies 8 feet deep in the lowest part, and the routes over the mountains are altogether impassable. The short summer, however, is warm. In July commences the dangerous labor of driving cattle across the Montanvert and the Mer de Glace, to pasture on the mountains beyond; and the occasion is made a holiday. One man is left on the other side of the glacier, to guard the cattle till autumn. The scenery of the valley, ever since public attention was drawn to it in 1741 by the English travellers Wyndham and Pocock, has attracted thousands of tourists every season. From the bottom the view is confined by the proximity of the mountains, which rise on the W. to a height of 8,500 feet above the sea, and on the E. to a height of 10,000 feet. The latter, among which is Mont Blanc, are clad with perpetual snow, and give birth to the glaciers which form the most interesting features of the valley. The largest of these, called the Mer de Glace, is 15 m. long, from 5 to 6 m. wide, and from 80 to 120 feet thick. It is broken by many crevices of fearful depth, through which may be seen the remarkable purity and deep blue color of the frozen mass. There are 5 or 6 glaciers of less size, some of which approach close to the cultivated fields. Beside visits to the glaciers, there are many other interesting excursions made by travellers: to the Flegère, whence a fine view of Mont Blanc is obtained; to the Brevin, which commands the whole of the opposite range; to the Col de Balme; to the source of the Arveiron; to the Jardin, a flowery island in the midst of a sea of ice; and to Mont Blanc. A body of guides, of over 200 experienced persons, has been established by the Sardinian government under a code of laws and with a fixed rate of charges.—CHAMOUNI, or CHAMONIX (anc. *Campis Munius*, *Campimontium*), the principal village of the above described valley, 39 m. S. E. of Geneva; pop. about 1,800. It owes its origin to a Benedictine priory, founded in 1090, and is hence occasionally called St. Priestre de Cha-

moulin, or La Priuré. The village is supported mainly by tourists, to whom it presents many attractions and conveniences.

CHAMP DE MARS, the name given to the annual meetings held by the Frankish tribes who took possession of Gaul during the 5th century. They were called in Latin *Placita*, while the Frankish appellation was *Mdis*. These meetings were sometimes military reviews, or solemn national assemblies, where all the free-men among the Franks gathered to pay homage to the supreme chief of the nation; sometimes special assemblies of the lords and warriors, called by the king to consult upon some military expedition, or of the bishops, to take their advice upon some point of general policy and adjust some interior difficulty. Under the first Carolingians, the time of these meetings was changed from March to May, whence they were called *Champ de Mai*.—CHAMP DE MARS is also the name of an immense oblong square, situated on the outskirts of Paris, between the *école militaire* and the Seine, and especially devoted to the drilling of troops and those great military pageants which the French are so fond of. It is 3,280 feet long by 1,640 wide, is flanked by ditches faced with stone, has 4 rows of trees on each side, and is entered by 5 gates. The first great feast of the French revolution, the *fête de la fédératien*, was celebrated here. On that occasion, the place not being ready, the population of Paris, of both sexes and all ranks, went to work by night and day, and completed it by the day, July 14, 1790. The following year, the place was the scene of a dreadful massacre ordered by the leaders of the constitutional party. In 1798, the accepting of the constitutional act voted by the convention; in 1794, the feast of the Supreme Being, with Robespierre as its leading performer; in 1796, the rejoicings on account of the taking of Milan by Bonaparte, took place there. On June 1, 1815, Napoleon held there the great assembly, known as the *Champ de Mai*, for the acceptance of the supplementary act to the imperial constitution. Here in 1837 the review was held, in consequence of which the Paris national guards were disbanded by Charles X. The republican feast of agriculture and industry was celebrated there in 1848.

CHAMPAGNE, an ancient province of France, which, previous to the revolution, constituted one of the great general military governments of the country, and was divided into 8 principal districts, viz.: Champagne proper, Le Rémois, Le Rethelois, La Brie-Champenoise, Le Parthois, Le Vallage, Le Bassigny, and Le Sénonais. For a long time it was governed by native princes, and was united to the crown of France at the beginning of the 14th century. At present Champagne is distributed among the departments of Aube, Marne, Haute-Marne, Ardennes, and part of the departments of Seine-et-Marne, Aisne, Yonne, and Meuse. Now, as then, Champagne is chiefly celebrated for its wines. It contains in all about 52,437 hectares or 125,-

000 acres of vine-growing land. That of the present department of Marne, however, alone produces what is technically known in commerce as champagne wine. The department of Ardennes, which occupies the northern part of the province, produces, in average seasons, about 80,000 hectolitres, or 1,760,000 gallons of a common red wine, which is exclusively consumed by the inhabitants. The best of it is wanting in body, spirit, and color, and will not bear exportation or keeping. The department of Haute-Marne, in the southern portion of the province, produces about 600,000 hectolitres, or 13,200,000 gallons, of which about one-half is consumed in the department, the remainder being sold to the neighboring arrondissements. The quality of the wines is superior to those of Ardennes in delicacy, flavor, and hardness. The department of Aube, which forms the S. E. portion of the province of Champagne, and the N. E. portion of that of Burgundy, yields about 580,000 hectolitres, or 12,500,000 gallons of red wine, the larger portion of which is reserved for home consumption, the rest finding a market as *vin ordinaire*. The better classes of wine are strong-bodied and heady, requiring to be kept at least 2 years before they are fit for use. Some white wines are also produced in this department, which are highly esteemed for their lively, spirituous, and agreeable qualities. The department of Marne, which forms the most important portion of the province, geographically as well as commercially, has about 20,000 hectares, or 46,000 acres of vineyards, which are divided among 27,000 different proprietors, and yield on the average about 700,000 hectolitres of red and white wines, one-third of which, principally the former, is consumed within the department, the balance forming one of the great staples of the commerce of the district. This department is divided into 5 arrondissements, viz., Châlons-sur-Marne, Epervay, Rheims, Sainte-Ménéhould, and Vitry-sur-Marne, of which Rheims and Epervay contain the most celebrated vineyards. The vines most in vogue are: for red wines, *le petit plant doré*, *le pineau*, *le perlusot*, and *le coulouz*; for white wines, *le blanc doré*, *le petit blanc*, *le chasselas*, and *le gros plant vert*. White and black varieties of grape are cultivated indiscriminately in vineyards destined to furnish white wines, the mixture being deemed necessary for the perfection of this style of wines, especially those denominated sparkling. In an exceedingly propitious season, however, the black grapes are apt to impart too much color to the liquor in the process of pressing; but as they produce still and creaming wines, superior in many necessary requisites to the white grapes, they are more generally employed, although great precautions are required to prevent this from occurring, not only by choosing the healthiest and ripest grapes, but also by discarding all green, dry, and spoiled berries.—When the vintage



takes place, in the latter part of September and the beginning of October, the bunches are carefully cut from the stalks and transported in covered baskets, by hand or on horseback, to the press, on which they are gently laid, and the lever applied with as much celerity as possible. After the first pressing, the product of which is placed aside, the mass is stirred, fresh grapes are added, and another application of the lever is made; and so for a third time. Water is then poured on the must, and the juice which exudes is converted into a beverage for the use of the workmen and laborers. The first and second pressings, known as the *vin de chots* and the *vin de taille*, are put into casks and placed in cellars of an equable temperature, until the first fermentation has taken place. In the month of March ensuing, after being fined and racked twice and even thrice, they are ready for bottling; previous to which, the products of various localities are intermixed for the purpose of obtaining the necessary qualities of aroma or perfume, delicacy of taste, and strength of body. Huge vats or tuns, prepared expressly for the purpose, containing in some cases as much as 6,000 gallons, are then filled with the combination, in proportions determined upon by the person occupying the position of taster for the establishment, which, after being thoroughly commingled and amalgamated, is allowed to settle, and is then drawn off into bottles, which are placed in racks so constructed that each bottle can be raised or lowered, so as to lie perfectly flat, or stand almost perpendicular. Up to this moment, the wines are rarely tampered with by the introduction of either sugar or brandy, but, in adverse seasons, those substances are sometimes necessary to enable them to undergo the operation of a secondary fermentation, without which it is impossible to make them sparkle or *mousser*. This process ordinarily commences during the month of June, and continues the whole summer, pending which, especially when the grapes begin to ripen, or in stormy weather, immense loss is sustained by the bursting of the bottles, and the consequent escape of the liquor. After a lapse of 18 months, during which the carbonic acid gas is generated by means of the suppressed fermentation, a thick muddy deposit is precipitated to the neck of the bottle, which has gradually been raised to a standing position, and the wine becomes perfectly clear and limpid, having a very light straw color, and in this state it will remain unchanged for years. When required for exportation, or for commerce, the sediment is carefully removed, *dégorgée* as it is termed, and a certain percentage of a liquor composed of fine rock candy dissolved and superior brandy, or an alcoholic distillation from the wine itself, is added to each bottle, which is strongly corked, and secured by wire and twine, and the air excluded by covering the entire neck with tin foil or sealing wax. The amount of liquor added to the wine varies from 8 to 20 per cent.,

according to the country in which it is to be consumed, France using the minimum quantity, and Russia the maximum. The number of bottles of sparkling champagne produced in the district amounts to 18,000,000 on an average, of which 5,000,000 are exported to Germany, 8,000,000 to the United States, 2,000,000 to Russia; about the same quantity is required for France and Belgium, the remainder of 1,000,000 being consumed in England and elsewhere.—The soil which produces this wine is composed, in a great measure, of chalk and lime formation, and is exceedingly stony. The choicest vineyards are invariably those having a south-eastern or south-western exposure. Among the factors, the wines termed *les vins de la montagne*, the product of the vineyards on the ridge of hills running the entire length of the district, command the highest price; *les vins de la Marne*, from vineyards situated in the valleys, rank next; and *les vins de la cote d'Avize*, among which are included the vineyards around Epernay, &c., obtain the lowest rates. The wines of Champagne are divided into 8 qualities: the sparkling or *mousseux*, which is the most popular, being of a highly effervescent character; the creaming or *crémant*, which is considered by connoisseurs the best; and the still or *sillery*, which resembles somewhat the white wines of Médoc. This beverage, although factitious, holds a higher place in popular regard than any other, "and is justly esteemed by the amateur, the physician, and the refined epicure; its sparkling qualities and agreeable sweetness attracting the first; its diuretic and strengthening properties rendering it valuable to the second; and its full flavor, delightful aroma, and refreshing bouquet, endearing it to the third." The price at Rheims, the business centre of the district, varies from 2 to 5 francs per bottle, every thing included; and in the very worst seasons, the maximum price has rarely been exceeded.

CHAMPAGNE, or CHAMPAIGNE, PHILIPS DE, a Flemish painter, born in Brussels, May 24, 1602, died in Paris, Aug. 12, 1674. He repaired to Paris at the age of 19, and without having enjoyed the instruction of any distinguished master, yet acquired a great reputation for his portraits and landscapes. His coloring is excellent, and his portraits possess great merit. His best pictures are to be found at Vincennes, and in the church of the Carmelites at Paris. One of his best portraits is that of himself, now in the Louvre.

CHAMPAGNY, JEAN BAPTISTE NOMPIER DE, duc de Cadore, a French statesman, born at Roanne in 1756, died in Paris in 1834. He was a member of the states-general in 1789, and was one of the first nobles to unite with the third estate. Arrested in 1793, he escaped the scaffold, and in 1799 he entered the council of state, and was in July, 1801, sent as ambassador to Vienna. In 1804 the emperor appointed him minister of the interior. He went with his master to Milan in 1805, and in 1807, after the peace of

First, he received the department of foreign affairs, which he kept until 1811. He followed Napoleon in the campaign immortalized by the battle of Wagram, and contributed to the treaty of peace which had for its result the marriage of the conqueror with the archduchess Marie Louise. He proposed also the annexation of Holland, the Hanseatic towns, and the duchy of Lauenburg to the French empire; but lost his portfolio in 1811, for having misunderstood his master's intentions toward Russia. Louis XVIII. made him a peer, but he adhered to Napoleon during the Hundred Days, and was dismissed after the battle of Waterloo. In 1819 he was made a peer again; in 1830 he adhered to the government of Louis Philippe.

CHAMPAIGN. I. A W. central co. of Ohio, intersected by Mad river, and traversed by two railroads; area about 890 sq. m.; pop. in 1850, 19,762. The surface is level or undulating, and the soil fertile. Productions in 1850: 964,617 bushels of corn, 225,808 of wheat, 170,997 of oats, and 17,870 tons of hay. There were 84 churches, and 4,780 pupils attending public schools. Capital, Urbanna. II. An E. co. of Ill., area about 380 sq. m., comprising a part of the Grand Prairie; pop. in 1855, 6,565. The surface consists of an open plain of great fertility, interspersed with small clusters of trees. The productions in 1850 amounted to 441,060 bushels of corn, 38,850 of oats, 1,406 tons of hay, and 33,710 lbs. of butter. Capital, Urbanna.

CHAMPE, JOHN, an officer in the war of the American revolution who gained distinction by his efforts to seize Arnold after his treason, born in Loudon co., Va., in 1752, died in Ky. near the close of the 18th century. He was selected from Gen. Lee's regiment by request of Washington, to go to New York as a deserter and spy, and if possible to seize and bring off Arnold in time to save the life of André. Champe undertook the enterprise with courage, passed the American lines with difficulty, was hotly pursued by his comrades as a deserter, reached New York, underwent an examination before Sir Henry Clinton, and by him was consigned to Gen. Arnold, who gave him in the British army his former rank. He discovered the custom of Arnold to walk in his garden at a late hour every night, formed a plan with a comrade to seize and gag him there, and to take him between them as a drunken companion to a boat on the Hudson, whence arrangements were made for his speedy transportation to the American head-quarters. On the appointed night Arnold failed to appear in the garden, and Champe after waiting for him till near morning returned with deep chagrin to his position in the British army. It proved that Arnold had the day before changed his quarters, preparatory to the embarkation of his troops for Virginia. There was nothing left for Champe but to embrace the first opportunity to escape to the American army, which he did soon after landing in Virginia, and joined the troops under Gen. Greene. Gen. Washington discharged him from

further service, lest, falling into the hands of the enemy, he should be immediately put to death upon a gibbet. When subsequently Washington sought for him to reward him for his faithful and dangerous service, he learned of his recent death in Kentucky.

CHAMPERTY (*campi partitio*), an agreement to divide land which is the subject of a suit, or the title to which is involved in controversy, in consideration of which the suit is to be carried on by the person who makes the bargain with the owner or claimant of the land. The term, however, is now applied to any suit, whether relating to real or personal estate, and champerty may be defined to be any agreement for the division of what shall be realized from a suit, in consideration of services to be rendered or money advanced on account thereof. In a popular sense it also includes the purchase of lands from a claimant who is not in possession, and the purchase of choses in action, for the purpose of bringing suit upon them, though neither of the two latter cases is strictly what is designated etymologically by the word; there being in fact no division of the subject, but a mere purchase on speculation. Maintenance was the aiding another in the prosecution of a suit, and if it was in consideration of receiving a part of what should be recovered, it constituted champerty. The distinction between maintenance and champerty was, that maintenance was the aiding or abetting the prosecution of a suit, whether for a part of the thing in suit or not; if a part of what should be recovered was to be received by the person aiding in the prosecution, then it was champerty. By old English statutes it was forbidden to aid a party to a suit in the prosecution or defence of the same, or to purchase a suit, or the right of suing. It was, however, permitted to aid a near kinsman, servant, or poor neighbor, from the mere consideration of relationship or charity. The evils sought to be remedied were: 1, officious intermeddling with controversies for the sake of some gain to be derived therefrom; 2, aiding a party from some motive of hostility or ill feeling toward the opposite party. At a time when the administration of justice was somewhat loose, and the minds of judges and juries could be acted upon by the influence of persons of some consideration, such interference with suits in aid of either party was a vicious abuse, and was by law declared to be a misdemeanor. As to the getting hold of claims to prosecute, whether by purchase or with an agreement to divide, it seems to have been practised by attorneys; and in addition to the general prohibition of maintenance, there was a special provision applying to attorneys. Then as to claims to land by persons out of possession, it was by statute prescribed that no one should buy or sell unless the vendor had been in possession or received the rents a year previous. Similar prohibitory laws have been generally adopted in this country, and in some states, as in Massachusetts,

where there was no statute on the subject, champerty has been held to be an offence at common law. In the state of New York an innovation was first made by allowing a person claiming title to lands, possession of which was held adversely, to execute a mortgage of such lands, which would be valid and have preference over all subsequent judgments against, or mortgages, &c., executed by the mortgager, in case he should ultimately recover title. The courts of that state have also made an exception as to conveyances of lands held adversely, if such conveyance was in pursuance of a contract entered into before the adverse possession commenced. Lastly, in respect to attorneys, the code of practice of New York authorizes a bargain between attorney and client as to compensation for the prosecution or defence of a suit, and this is understood to warrant an agreement that the attorney shall have part of what shall be recovered. It was a very ancient rule of the common law that chases in action should not be assigned, the object of which rule was to prevent any champertious intermeddling with claims to be put in suit; but courts of equity long since recognized the right of the assignee, and no other effect of the rule remained except that it was required that a suit at law should be brought in the name of the assignor. But this has now been abrogated in the state of New York, as well as many other states, and a suit must be brought in the name of the real party in interest.

**CHAMPION**, a term derived from chivalry, and signifying one who undertakes to defend his cause by force of arms. Custom allows a wider latitude of application to the word. In the ruder stages of society, when might constituted right, the right was frequently submitted to such an arbitrament. The two elements which then chiefly entered into the social system, namely, religion and love of military glory, both inclined toward a ceremony in which God should be called to indicate the righteousness of the cause by success in the trial by battle. Accordingly, we find from the earliest ages of feudalism the trial by private combat recognized as a legal mode of settling disputes. The trial came gradually to be hedged in by formalities, until it was only appealed to in cases of grave import. It is obvious that in many cases of personal encounter the disputants must be so unequally matched that they could not be pitted against each other with any chance of a fair result; the law therefore permitted the plaintiff, or the defendant in cases of accusation, to name a proxy or champion. Appeal to combat could be made in court-martial, that is to say, in cases coming under the jurisdiction of the court of chivalry or honor, in appeals of felony, and in certain cases upon issue joined in a writ of right. Ladies and minors, being disqualified by reason of their physical incapacity, prosecuted their claims by a champion. The champion usually challenged his opponent by casting down his glove, which the latter

accepted by taking up. Combat was then joined, and carried on to the death, or till stopped by the judges. Verdict was given for the victorious party. It is from this custom that our modern phrase is derived "to appeal to the God of battles." Judicial combat appears to be of Gothic origin. William the Norman introduced it into England, where it was practised as late as 1688. In the 13th year of Queen Elizabeth a trial of battle was fought by champions in Tothillfields, Westminster, on a writ of right. The custom was suppressed in France by St. Louis in 1270, but remained unrepealed on the English statute book to the time of George IV., when a highwayman escaped from justice by claiming an appeal to wager of battle. In the ceremonies until recently in use on the coronation of the kings of England, a champion figures conspicuously. The championship of England is hereditary in the family of Dymocke, whose eldest male representative heir, armed *cap-a-pis* in the style of the middle ages, should ride into the ring, and throwing down his gauntlet dare any one to dispute the right of the sovereign to the throne. This portion of the ceremonial last occurred in 1821, at the coronation of George IV. William IV. and Victoria dispensed with it.

**CHAMPLAIN**, a post village and township at the N. extremity of Clinton co., N. Y.; pop. of township in 1855, 6,197; of village, 1,473. It is situated on Chazy river, which supplies it with water power, and is connected by the Northern railroad with Rouse's Point and Ogdensburg. It is comprised in Champlain collection district, and has some trade, which is carried on by the Chazy river. The village contains several churches, an academy, a newspaper office, and manufactories of iron and other articles.

**CHAMPLAIN**, a N. W. co. of Canada E. on the left bank of the St. Lawrence, traversed by the St. Maurice river, and including several small lakes; area 6,200 sq. m.; pop. in 1851-2, 18,896. In 1851-2 it produced 33,002 bushels of wheat, 200,796 of oats, 19,682 of buckwheat, 11,819 tons of hay, 5,469 pounds of tobacco, 29,180 of wool, 166,900 of maple sugar, and 81,059 of butter. It contained 8 grist, 11 saw, and 4 fulling mills, 1 tannery, 1 foundery, 15 schools, and 8 churches.

**CHAMPLAIN LAKE**, a picturesque sheet of water lying between New York and Vermont, and extending from Whitehall, in the former state, to St. John's in Canada. It is 126 m. long, and varies in breadth from 40 rods to 15 m. Its greatest breadth unobstructed by islands is about 10 m., at a point near Burlington, Vt. Its depth varies from 54 to 283 feet, and vessels of 80 or 100 tons navigate its whole extent. The principal islands are North Hero, 11 by 2 m., South Hero, 18 by 4 m., and La Motte, 6 by 2 m.; these 3, with several smaller ones and the peninsula of Alburt, all in the N. part, form the county of Grand Isle in Ver-

nont. The largest rivers entering the lake are the Missisquoi, Onion or Winoski, Lamolle, Otter, Chazy, Saranac (the old Indian name for the lake itself), Au Sable, and the outlet of Lake George in the S. W. part. Its own outlet is the Sorel or Richelieu river, which empties into the St. Lawrence, and with the Chambly canal affords a passage for vessels of large size to the ocean. On the S. it has boatable communication, by means of the Champlain canal, with the Hudson river. Navigation is usually closed by ice about the end of November, and opens early in April. The waters abound with bass, pickerel, salmon trout, and other varieties of fish. This lake, filling a valley enclosed by high mountains, is celebrated for its magnificent scenery, embracing the Green mountains of Vermont on the E., and the Adirondac mountains of New York on the W. Several pleasant villages and watering places, with one or two important towns, are situated on its shores, which comprise the collection districts of Burlington and Champlain. The aggregate tonnage enrolled and licensed in June, 1857, was 10,550 $\frac{1}{2}$ ; value of imports, \$5,043,595; value of exports, \$2,965,532; number of vessels entered, 1,878; tons, 122,543; number of vessels cleared, 1,758; tons, 117,886.

—Lake Champlain was discovered in 1609 by Samuel Champlain, whose name it received. It was the scene of many important events in the early wars of the continent, and in the year 1814 it became of much importance in our war with England. At that time an invasion of the northern portion of New York was contemplated, and a force of from 10,000 to 15,000 troops was collected in the vicinity of Montreal for that purpose. In such an expedition, the command of Lake Champlain became an object of great moment, as it flanked the march of the invading army for more than 100 miles, thus offering great facilities for the transportation of reinforcements, supplies, &c. The efforts of both nations were therefore directed to the creation of naval forces on the lake in the shortest possible time, and vessels were built and equipped for service with magical rapidity. The *Saratoga*, the largest American vessel, was built at Vergennes, and was launched on the 40th day after the first tree used in her frame was taken from the forest. In Aug. 1814, the English army, about 12,000 strong, commanded by Sir George Prevost, advanced in 4 divisions against Plattsburg, then held by Brig. Gen. Macomb, with a force of only 1,500 men. Capt. McDonough, who commanded the American naval force on the lake, anchored in Plattsburg bay on Sept. 8, and awaited the appearance of the enemy's squadron, which came down the lake upon Sir George Prevost's left flank. Plattsburg bay is a deep indentation of the shore, into which the river Saranac empties, at the mouth of which, and upon both its banks, stands the village of Plattsburg, which at that time contained about 70 houses. Cumberland head is the northernmost point of Plattsburg bay;

and about  $\frac{1}{2}$  of a league from it, in a S. W. direction, lies Crab island, small and low, and surrounded by an extensive shoal. Upon this island a battery of one gun was established. Capt. McDonough's vessels were anchored with springs on their cables in line parallel to the shore and in the following order: The *Eagle*, brig, of 20 guns (8 long 18s, 12 32-lb. carronades) and 150 men, Capt. Henley, was at the head of the line, and lay so near Cumberland head as to bring the enemy within carronade range should he attempt to enter the bay by doubling it; the *Saratoga*, ship, of 26 guns (8 long 24s, 6 42, and 12 32-lb. carronades) and 212 men, Capt. McDonough's vessel, was 2d; the *Ticonderoga*, schooner, of 17 guns (4 long 18s, 8 long 12s) and 110 men, Lieut.-commandant Stephen Cassin, was the 3d; and the *Preble*, a sloop or cutter, of 7 guns (long 9-prs.) and 80 men, Lieut.-commandant Budd, was the last vessel, lying so near the shoals off Crab island as to prevent the enemy from passing that end of the line. In addition to these 4 vessels, there were 6 gun-boats, mounting each a long 24-pr. and an 18-lb. Columbiad, and 4 of a smaller size, mounting each a long 24-pr. The complements of these gun-boats were about 85 men each. The total American force, therefore, was 14 vessels, mounting 86 guns, and carrying about 850 officers and men, including a small detachment of soldiers acting as marines. The gun-boats were distributed inshore of the large vessels, and in such a manner as to sustain the line the most effectually. They were not anchored, but were kept in motion by sweeps during the whole engagement. In addition to the customary arrangement of springs upon the cables, a kedge was laid off upon each bow of the *Saratoga*, their hawsers being brought in upon the quarters, the bights hanging under water out of the reach of shot. In the selection of his anchorage, and in all his arrangements for battle, Capt. McDonough evinced high professional ability, and to the precaution of laying out the kedges upon the quarters of his own ship, he owed the victory which ensued. On the morning of Sept. 11, 1814, just after the sun had risen, the approach of the British squadron was discovered by the guard-boats of the Americans, and preparations were made for action. Soon after 8 o'clock, the enemy having formed in line abreast, approached the American squadron in good order, the wind moderate and fair, the weather fine. The British squadron was commanded by Capt. Downie, an officer of distinction, and was composed as follows: The largest vessel, commanded by Capt. Downie in person, was the *Confiance*, a ship, of 37 guns, principally long 24s, with a complement of considerably more than 800 officers and men; the *Linnet*, brig, of 16 long 12s, with a crew of about 100 men; the *Chubb*, sloop, of 11 guns, 18-lb. carronades, and 1 long 6, and 40 men; the *Finch*, sloop, also of 11 guns, and 40 men; 12 gun-boats, 8 mounting 2, and the remainder 1 gun each;

the whole force comprising 16 vessels, mounting 95 guns, and carrying about 1,000 officers and men. As the enemy approached, the Americans sprung their broadsides to bear, and a few moments passed in solemn silence and expectation. The *Eagle*, the headmost vessel of our line, opened first with 4 long 18-pounders, and soon after the *Saratoga* opened her fire, McDonough himself pointing the first gun. The enemy advanced steadily and gallantly, and, with the exception of the *Ohubb* and the gun-boats, which kept under way, anchored at about 9 o'clock in line ahead, about 800 yards from the American line. The *Confiance* did not return a shot until she had anchored, when she fired a full broadside principally upon the *Saratoga*, and with the most terribly destructive effect. The water was smooth, the ships were within point-blank range, and the guns were pointed with accuracy. This single broadside killed or wounded about 40 men, or near one-fifth the complement of the *Saratoga*. The engagement now became animated and very sanguinary. It could hardly have been otherwise, as it was very close, the vessels were heavily armed, and their crews very numerous in proportion to their size. In fact, they more nearly resembled floating batteries than ordinary vessels of war. About the middle of the engagement, the whole starboard battery of the *Saratoga* had become unavailable, the long guns having been disabled by shot, and the carronades dismounted. It therefore became necessary to wind the ship, in order to bring the larboard battery to bear. This was accomplished by means of the kedges which had been laid out, and the fresh broadside was brought to bear upon the *Confiance* with great effect. She attempted the same evolution, though unsuccessfully, and, about 2½ hours after the engagement commenced, surrendered. The *Saratoga's* broadside was then sprung upon the *Linnet*, which struck a few minutes afterward. The *Finch* had previously been crippled, and drifted down upon *Orab* island, where, upon receiving a shot from the 1 gun battery, she surrendered; and the *Ohubb* had earlier in the engagement struck to the *Ticonderoga*. The gun-boats struck soon after the *Confiance*, though they succeeded in escaping, none of our vessels being in a condition to pursue them. The American loss in killed and wounded was 111. That of the enemy was variously stated at from 178 to 204. The conduct of Capt. McDonough, his officers and men, was highly applauded; in fact, the calm and desperate bravery with which this action was fought could hardly be excelled. Capt. Henley of the *Eagle*, and Lieut.-commandant Cassin of the *Ticonderoga*, were also spoken of in terms of great commendation. This victory brought in its train far more important results than any other naval achievement of the country. Sir George Prevost, who was prepared for an attack upon Gen. Macomb, made a precipitate retreat as soon as the British squadron surrendered, abandoning a large portion of his artillery and

stores, and no further attempts at an invasion in that quarter were made.

CHAMPLAIN, SAMUEL, a French navigator, and first governor of New France or Lower Canada, was born of good family, in Brouage, Saintonge, about 1570, died in Quebec, in Dec. 1635. In his youth he served in the French navy. Henry IV. of France gave him a pension and attached him to his person. M. de Chastes, governor of Dieppe, having obtained from the king permission to found settlements in North America, engaged Champlain as his substitute in the enterprise. Henry IV. gave him the title of general lieutenant of Canada, and charged him to send home a faithful account of his mission. Accordingly, Champlain embarked at Honfleur, March 15, 1603, on board a ship commanded by Pont-Gravé, an enterprising sailor of St. Malo. On May 24 they cast anchor in the river St. Lawrence. Here Pont-Gravé and he with 5 men embarked in a canoe and ascended the river as far as the Sault St. Louis, where Cartier was brought to a stop in his voyage in 1535. Finding it inexpedient to advance, they retraced their way, carefully examining the banks of the river, to the ship, in which Champlain returned to France, and published in 1603 his account *Des sauvages*. On reaching France, he found that the concession had been transferred from his patron De Chastes, deceased, to the sieur de Monts. Letters patent to this gentleman nominated him vice-admiral, and lieutenant-general of his majesty in that part of Acadia formerly called Norimbergue, with full power to make peace and war, and to trade in peltries, from lat. 40° to 46° N., to the exclusion of all other persons, also to make grants of lands to lat. 54°. De Monts made a new engagement with Champlain for another voyage. Leaving France together, they proceeded to the St. Lawrence with the view of founding a settlement on its banks; but De Monts finding the climate too severe, they skirted the coast of Nova Scotia till they arrived at an island in the St. Croix river between Maine and New Brunswick, but speedily left it in consequence of its want of water. Finally they decided on Port Royal, E. side of Nova Scotia. During the winter and succeeding year Champlain was occupied in exploring the coast, which he did as far as Cape Cod, Mass. In 1607 he returned to France. His 8d voyage was undertaken at the solicitation of De Monts, who had once more taken up the idea to found a colony on the St. Lawrence, near the mouth of the Saguenay. He sailed in 1608, again accompanied by Pont-Gravé, for the port of Tadoussac, Saguenay river. Champlain perceived that this was no place for a permanent settlement, and therefore, in 1608, selected for a site Quebec, on the St. Lawrence, so called from an Indian word signifying the narrows. In a short time this settlement began to grow, under the impulse of profitable trade. Champlain erected houses, sowed grain, and did all he could to develop the rising fur trade. Here some of his people planned to assassinate him and return

to France, but the plot was discovered and quashed by the hanging of the ringleader. In 1609 the Hurons, Algonquins, and other Indian tribes, took the war-path against the Iroquois. Champlain, considering the Iroquois dangerous to the colony, joined the Hurons, and descended the Iroquois or Sorel river, until stopped by the falls of Chamblly. Here he sent back his boat and crew, keeping only 2 men with himself. With these he accompanied the Hurons in their canoes to the lake, since called Lake Champlain. They had hoped to surprise the Iroquois, but the scouts of that tribe saw them on the lake, so they put ashore, intending to fight, on the next day. Champlain set his allies in order of battle. On the first charge of the Iroquois, 200 in number, he shot their 2 chiefs with his firelock. The enemy fled, and the Hurons returned to Quebec with 50 scalps. In September of the same year he returned to France, leaving the colony under the care of Pierre Ohavin. Returning, he left Honfleur April 8, 1610, arrived at Tadousac on the 26th of the same month, landed there, and induced the Montagnez Indians of the place to lend him 60 braves, with whom he once more ascended the river to Lake Champlain to fight the Iroquois. Fortune failed to favor him in this expedition. His allies were defeated, and himself wounded by an arrow, which caused him to return to Quebec, and thence once more to France, where he found Henry IV. dead, and the fortunes of De Monts so broken that he was unable to continue the settlement of his new colony at Montreal. The queen regent, however, having appointed Charles of Bourbon nominal governor of New France, that prince nominated Champlain his lieutenant-governor with extensive powers, which appointment was also continued under the prince of Condé and his relative Montmorency. Champlain returned to America in 1612, again engaged in war with the Iroquois, and extended his discoveries. About this time—but the dates are uncertain—he explored the Ottawa river, to a lake about 65 leagues from its mouth, being in hopes by that route to reach Hudson's bay, just discovered by the mariner whose name it bears, and with a vague idea of throwing some light on the northwest passage. In 1615 he invited some Jesuit missionaries to the colony. The same year he made an extensive exploration, ascending the Ottawa for some distance, then taking an easterly direction, partly overland, partly by canoe, till he arrived at the eastern shore of Lake Huron; embarked on the lake to a southern point; then going overland to the western extremity of Ontario, he explored that lake and the St. Lawrence as far as the entrance of Lake Champlain, where he made another campaign with the Hurons and wintered with them, returning to Quebec in the spring. Up to this time, Champlain had given more attention to exploring the country, and establishing relations with his neighbors, than to consolidating his power in the

colony. Once more, therefore, he went home, with the intention of importing additional colonists and of getting permission to fortify the settlement. He returned with his family, and the title of governor, in 1620; but it was not till 1624 that his patrons at home enabled him to commence defensive works. Meantime, in 1627, England had declared war against France. Captain Kirk, a Frenchman in the English service, came with an armament of 6 ships, and Quebec, which now contained about 200 souls, being unable to make resistance, capitulated. By the treaty of St. Germain, March 29, 1632, Canada was restored to France. Champlain, being reinstated as governor, strained every nerve to place his colony in a better position than before. Among the means on which he reckoned much was the Christianization of the Indians, especially of his friends the Hurons. His force of missionaries was increased to 15 clergy, with numerous lay brothers. A college was established at Quebec, in which the children of the savages were trained in habits of civilization and in the use of the French language. He did not live to see the result of his efforts, his death having taken place the same year. He was succeeded as governor by De Montagny. Champlain, apart from his merits as a discoverer, was a noteworthy man. His zeal for the propagation of Christianity was great. A saying of his is preserved—that the salvation of one soul is of more importance than the founding of a new empire. While in Canada he devoted himself wholly to the duties of his position, and apparently with a single eye to benefit his patrons. Although traffic with the Indians was very lucrative, he never engaged in it. His views of justice were stern and upright, yet tempered with mercy. He has been accused of credulity in repeating the stories told him by the Indians, but these were omitted in revising his writings. The best edition of his works is that published in 4to., 1640.

CHAMPLAIN CANAL commences at Whitehall, at the S. extremity of Lake Champlain, and runs in a general S. course to the Hudson, which it joins at Fort Edward. Thence it extends along the W. side of the river, passes Saratoga, and joins the Erie canal at Watervliet, opposite Troy. By this canal a water communication was opened between the Hudson and the St. Lawrence, through Lake Champlain. It was completed in 1823, and its total length, including about 17 m. of improved river navigation, is 64 m.

CHAMPMESLÉ, MARIE DESMARES DE, a French actress, born at Rouen in 1644, died at Auteuil, near Paris, in 1698. She was the granddaughter of a president of the parliament of Normandy, but her father being disinherited, she selected the stage as a means of support, made her debut in her native city, and married an actor, Charles Chevillet, sieur de Champmeslé, who had also some talent. Both acquired such fame that they were invited to Paris, where they were successful, especially at the theatre of

the hôtel de Bourgogne. There Marie, who at first was indebted for her flattering reception to her personal charms rather than her superior acting, became acquainted with Racine, who gave her lessons in elocution. She improved greatly under his instruction. He wrote many tragic parts for her, which she performed with touching effect. She is enthusiastically praised by Madame de Sévigné, La Fontaine, and Boileau. Her success lasted until her last performance, when she was over 60 years old. Her husband was a great friend of La Fontaine, and wrote several comedies in concert with that poet. One among them, entitled *Le Florentin*, is usually printed with La Fontaine's works.

CHAMPOLLION, JEAN FRANÇOIS, a French orientalist and archaeologist, born at Figeac, department of Lot, Dec. 23, 1790, died in Paris, March 4, 1832. Educated at Grenoble, under the direction of his elder brother, he learned the Hebrew, Chaldee, Syriac, Ethiopic, and Arabic languages. Turning his attention to Egypt, he became impressed with the idea that a thorough knowledge of the Coptic would unravel many mysteries. He at once began the study, and was soon satisfied that by applying his knowledge of this language to various oriental documents, he should be able to give a full description of Egypt as it was under the Pharaohs. The introduction and the plan of this intended work were read by him, in 1807, to the academy of Grenoble, before he was 17 years old. A few months later he repaired to Paris, where he became acquainted with the most renowned orientalists of the time, Millin, Langlès, Silvestre de Sacy, Chézy, and assiduously attended the lectures at the college of France and the royal school of oriental languages, giving special attention to the Coptic, through which he now hoped to decipher hieroglyphic inscriptions. He consequently prepared a Coptic grammar and dictionary, which he never ceased to revise and enlarge. After perfecting his knowledge of the Arabic, Persian, and Sanscrit, he began in 1808 to perceive a dim light through the arcana of hieroglyphic writing, and by a minute comparison between the Rosetta inscription and a demotic papyrus, he found out the 25 Egyptian letters as set down by Plutarch. To this mode of writing he took such a liking, and acquired such familiarity with it, as to use it even for his private notes. In 1809 he was appointed professor of history in the faculty of Grenoble, and in 1814 appeared the 2 first volumes of his great work, *L'Égypte sous les Pharaons*. His system of hieroglyphic interpretation was, however, still in embryo. During the troubles of the restoration he removed to his native city, where he devoted his leisure hours to remoulding his Coptic dictionary, and transcribing his Coptic grammar, which copy, now in the imperial library, is a masterpiece of oriental calligraphy. In 1818 he resumed his professorship at Grenoble. Meditation and new research had now nearly brought his sys-

tem to maturity. A few months later he went to Paris, where he read in succession before the academy of inscriptions a series of papers, expounding his theory of the hieratic writing. This he held to be simply an abbreviated form of the hieroglyphic, while the demotic bears striking resemblance to our alphabetic signs. In this exposition, afterward published under the title of *Lettre à M. Dacier*, he gave evidence of ability to read many names inscribed on Egyptian monuments. When submitted to the academy in its definitive form, Sept. 17, 1822, it was proclaimed to be a complete discovery of the hieroglyphic alphabet, and Louis XVIII. sent as a reward to its author a snuff box with his initials in diamonds. The discovery, however, was contested by Dr. Thomas Young, who had previously read some of the mysterious characters, and the claim of the English archaeologist was indeed not without foundation; but after a long and thorough discussion, it has been acknowledged by all unprejudiced minds of both nations, that Champollion had greatly improved upon the principles and premises laid down by Dr. Young. In a series of papers which he read in April, May, and June, 1823, he expounded successively the 8 concurring elements of the graphic system of the Egyptians, the figurative, the ideographic, and the alphabetic, which papers formed the great work published in 1824, at the expense of the government, under the title of *Précis du système hiéroglyphique des anciens Égyptiens*. Champollion had, meanwhile, published the 3 first volumes of his *Panthéon Égyptien*, which, however, was not completed. From 1824 to 1826 he travelled in Italy, and purchased for the French government a valuable collection of Egyptian antiquities, which had been brought to Leghorn by the English consul, Henry Salt; and visited the museums of Turin, Florence, Rome, and Naples, which he thoroughly examined, giving an account of his researches and discoveries in several papers read before various Italian academies, or addressed to prominent persons in France. The most remarkable are his *Première et seconde lettre au duc de Blacas*, in which he presented several successful applications of his system. On his return to Paris, he found that an Egyptian museum had been created at the Louvre by a royal decree, himself being appointed keeper, and, at the same time, professor of Egyptian archaeology in the museum. He devoted his attention to his new duties, and so arranged the museum that it became a model for all similar establishments. But his most ardent wish was to visit Egypt; this was gratified through the munificence of Charles X. At the head of a scientific and artistic commission, in conjunction with a similar one sent by the duke of Tuscany, under the direction of Rosellini, Champollion embarked, July 31, 1828, explored Egypt with the most untiring zeal during more than 18 months, giving interesting accounts of his progress in his letters to his brother, and returned in March,

It elected a member of the academy of inscriptions. To this scientific society he communicated various results of his explorations, and especially his *Mémoire sur les signes employés par les Égyptiens dans leurs trois systèmes graphiques à la notation des principales divisions du temps*. He then wrote his *Grammaire Égyptienne*, and his *Dictionnaire hiéroglyphique*, while preparing the materials for the great descriptive work in which he intended to give the results of his travels in Egypt, and which was to be a complete picture of ancient Egyptian civilization. The prospectus of this publication, issued toward the end of 1831, was the last paper of Champollion. He had a few months before been appointed professor of Egyptian archaeology in the college of France, and had opened his lectures; but he was obliged to stop them, on account of a fit of apoplexy. He tried in vain to resume them; he was only able to give the finishing touch to his *Grammaire Égyptienne*, which he considered his best title to the regard of posterity. All his manuscripts were purchased by the French government, and published from 1834 to 1848, under the supervision of his brother.

CHAMPOLLION FIGEAC, JEAN JACQUES, a French archaeologist, born in 1778 at Figeac, which name has been affixed to his patronymic to distinguish him from his younger brother, the celebrated orientalist. He was at first librarian of the public library and professor of Greek literature at Grenoble. In 1828 he removed to Paris, being appointed professor at the *école des chartes*, and keeper of the manuscripts in the royal (now imperial) library, which office he retained until 1848. He is now (1858) librarian at the imperial château of Fontainebleau. He has edited many valuable manuscripts connected with the history of France, most of them under the patronage of the government or the French historical society. He has aided Silvestre de Sacy and Dacier in several important publications, and superintended the unfinished publications of his brother, especially the *Grammaire Égyptienne*, the *Dictionnaire hiéroglyphique*, and the *Voyage en Égypte*.

CHANCE. The doctrine of chances is a branch of mathematics which calculates the degree of probability of a contingent event, or of the correctness of a result. It is used in the discussion of scientific observations, especially in astronomy and geodesy; and also in the calculation of annuities and insurance.

CHANCEL, in Gothic architecture, that portion of a church occupied by the clergy, and usually separated from the nave and aisles by screens made of carved stone or oak. The screen which separated the chancel from the nave was called the rood screen, because a rood or large crucifix was usually placed on it, accompanied with 2 figures representing St. John and the Virgin Mary. In the chancel were situated the high altar, the *sedilia*, or seats for the officiating clergy, and the *piscina*, in which the water used for

It was usually surrounded with carved seats or stalls, which were occupied by the clergy not engaged in the services. These were also used when the office was sung in choir, a lectern being placed in the centre of the chancel. The stalls were usually enriched with carvings, and had canopies of carved oak placed over them. The chancel in Gothic buildings occupies the same place with the apsis in the ancient basilicas, and was called so from the *cancelli* or rails which were used in the early churches to separate the clergy from the laity.

CHANCELLOR, a law officer known to the polity of several countries. The derivation of the title is uncertain. It has been derived by Coke from the right of cancellation of patents and other royal grants, inherent in this officer, for misrepresentation of facts or on other grounds. But the word chancel would point to a more ancient derivation. The *cancellarius* of the Roman courts was simply a door-keeper, or usher, to keep back the people who pressed rudely forward to the *cancelli*, or railings. The door-keeper afterward became chief scribe, an official which the Roman church borrowed from the Roman empire, and still retains in the bishop's chancellor. The function of the chancellor is thus described by Blackstone: "When the modern kingdoms of Europe were established upon the ruins of the empire, almost every state preserved its chancellor, with different jurisdictions and dignities, according to the different constitutions. But in all of them he seems to have had the supervision of all charters, letters, and such other public instruments of the crown as were authenticated in the most solemn manner, and therefore, when seals came into use, he had always the custody of the king's great seal; so that the office of chancellor, or lord keeper, whose authority by the statute of Elizabeth is declared to be exactly the same, is with us created by the mere delivery of the king's great seal into his custody, whereby he becomes, without writ or patent, an officer of the greatest weight and power of any now subsisting in the kingdom, and superior in point of precedency to every temporal lord. He is a privy councillor by his office, and prolocutor of the house of lords by prescription. To him belongs the appointment of all justices of the peace throughout the kingdom. Being formerly an ecclesiastic, for none else were then capable of an office so conversant in writing, and presiding over the king's chapel, he became keeper of the king's conscience, visitor in right of the king of all royal hospitals and colleges, and patron of all the king's livings under the value of 20 marks (or £20) per annum. He is the general guardian of all infants, idiots, and lunatics, and has the general superintendence of all charitable uses in the kingdom, and all this over and above the vast and extensive jurisdiction which he exercises in his judicial capacity in the court of chancery." The chancellor of England is a member of the cabinet, and



as such retires on a change of ministry. This union of judicial and political functions was always an impediment to justice, and, as the public business takes precedence, gave rise to great inconvenience in the business of the court. By act of parliament passed in 1851 the chancellor has been relieved of a considerable part of his judicial duties by the appointment of 2 lords justices who, together with the chancellor, constitute a court of appeals for the review of cases brought from the vice-chancellors and master of the rolls, all causes being heard in the first instance by the officers last named. Either of the lords justices may be required by the chancellor to sit as vice-chancellors, in which case an appeal lies in like manner to the appellate court. The chancellors of England have usually been distinguished for great legal attainments as well as political weight. Lords Eldon, Brougham, Cottenham, and St. Leonards have been the most distinguished of the present century; the latter of whom (formerly known as Sir Edward Sugden) has had an important part in the late measures for the reform and improvement of the court of chancery.—The CHANCELLOR OF THE EXCHEQUER is a member of the British cabinet, and upon him devolves the charge of the public income and expenditure. Formerly the prime minister, if a commoner, held the office; but the increase of government responsibilities has compelled the separation of the duties. In the present generation the office has been in the hands of Mr. Canning, Sir Robert Peel, Lord Althorpe, Mr. Disraeli, Mr. Francis Baring, Mr. Gladstone, Sir Charles Wood, and in 1858 again of Mr. Disraeli.—The CHANCELLOR OF OXFORD or CAMBRIDGE is the chief officer of those collegiate bodies. He is elected and his office is honorary, the duties being discharged by the vice-chancellor.—The CHANCELLOR OF A BISHOP sits in the consistorial court, and is theoretically the bishop's assessor and legal adviser.—In continental Europe there are various political as well as ecclesiastical officials styled chancellors. The chancellor of France was one of the highest officials of the old monarchy. The office was closely analogous to that of England. The chancellor was president of the great council and of the parliaments, drew up ordinances and letters patent, and held the royal seals. It is connected with the illustrious names of Duprat, De l'Hôpital, Birague, Maupeou, Malesherbes, and other distinguished jurists. Louis XV. held the seals himself for a time, and in 1757, the censorship having been associated with the other duties of the office, the virtuous Malesherbes, deeming executive and police duties incompatible with the purity of the judicial office, resigned. It was abolished in 1790; revived for a short time by Napoleon, that his court might be graced with the title, for the functions were not restored; revived under the restoration, it was finally abolished in 1830.

CHANCERY. By this term is designated the English system of equity, which, in a modi-

fied form, has been introduced into the United States. The name, according to Coke, was derived a *cancellando*, because it was the office of the chancellor to cancel letters patent of the king which had been improvidently issued. Others, as Spelman and Cowell, suppose that it originated a *cancellis*, that is, lattice work, by which the crowd was shut off—an etymology which would seem preposterous but for the analogous case of the title of the legal profession in England and this country, which is taken from the bar or railing by which practising lawyers were enclosed and separated from other attendants in court. The system which the name designates is as peculiar as its title. There are several theories as to the mode in which this branch of jurisprudence has been developed. One is that it was a usurpation by the chancellors, who were at an early period ecclesiastics, and hostile to the spirit of the common law. This was maintained by Lord Coke, and while chief justice of the king's bench, he vigorously resisted the attempt of the lord chancellor Ellesmere to give relief against a judgment in the king's bench, which had been notoriously obtained by fraud. The parties and their solicitors and counsel were indicted for questioning the judgment; but the matter having been brought before the king, he decided in favor of the courts of equity, but putting his decision merely upon an arbitrary discretion, which he claimed as his prerogative. The jurisdiction of actions by the court of chancery took its rise from a device of ecclesiastical chancellors to evade the statutes of mortmain, that is to say, statutes prohibiting the grant of lands to religious houses. Instead of a grant of the lands directly to the parties thus disabled to take, the practice was introduced of making a grant to a person who was under no disability, but for the use of religious corporations or persons; and in chancery it was held that the use was binding in conscience, and could be enforced. It was for the purpose of getting jurisdiction of this class of cases that John Waltham, chancellor of Richard II., adopted the *subpoena*, which has ever since been the process for commencing a suit in equity. To understand the nature of this innovation, it is necessary to bear in mind that all writs for the commencement of suits in the different courts, though issued from the office of the chancellor, which was called *officina justitie*, were returnable, not to the office from which issued, but to the courts where such suits were to be prosecuted. But the chancellor claimed to have authority from something contained in one of the statutes to compel parties to appear in chancery and answer in respect to a use. So far there is some color for the charge of usurpation of authority for ecclesiastical advantage; but when by act of parliament, passed shortly afterward, uses were made subject to the statutes of mortmain the same as the lands themselves, the doctrine of the court was found to be beneficial

otherwise as a relief from restraints upon the alienation of property which had long existed. In the reign of Henry IV. and V., the commons attempted unsuccessfully to suppress the writ of subpoena, the object of which was to take away the jurisdiction of the court of chancery; and in the reign of Edward IV. it had become the regular practice of the court to entertain actions commenced by that process. The statute of uses, 27 Henry VIII., by which uses were executed, that is to say, transferred into possession, seemed likely to oust the chancellor of his new jurisdiction, as the courts of common law thereupon took cognizance of a use as being the real ownership of land; but by a narrow construction of the law, by which only one use was recognized by courts of law, the court of chancery was enabled to regain its power. Thus a conveyance to A, for the use of B, in trust for C, was held by common law courts to be a use executed in B, and the trust was a nullity; but in chancery it was held that the 2d was as binding as the 1st, and thus, under the name of trusts, the same class of cases still remained exclusively of equity cognizance. The court having thus acquired the right of calling parties before it by process of subpoena, its jurisdiction was extended to a great variety of other cases, some of which were cognizable by common law courts; but the remark of Blackstone that this was done upon false and fictitious suggestions, and that jurisdiction was obtained of matters that belonged wholly to the common law courts, savors rather of old prejudice than of his usual candor, and is certainly not tenable. Another theory in respect to the peculiar nature of proceedings in chancery is that relief was sought thereby from the rigid rules of the common law. This would seem to be sustained by the case of trusts already mentioned. Another similar class of cases of which chancery took cognizance was that of forfeitures and penalties. At common law, the penalty of a bond was deemed the debt upon non-performance of the condition, and judgment was recovered accordingly; but in chancery the amount really due was considered to be the debt, and on tender thereof with costs of suit at any time before judgment a stay of proceedings was granted. So as to mortgage: at common law the land was forfeited upon non-payment of the bond when due; but in chancery relief was given upon subsequent payment or tender of the real debt. The same doctrine was extended to pledges, and to other personal contracts subject to a penalty or involving a forfeiture. In these cases, it is true that the over-strict rule at common law was the occasion of resorting to chancery for relief, but it is also true that the difference between the courts was not in the construction of what was right in itself, but in the refusal of the common law courts to give a relief according to the right, which they could have done as well as a court of chancery, and which afterward they were compelled to do in respect

to bonds and mortgages, by statute; as for instance, a judgment upon a bond, although nominally for the penalty, could be enforced only for the amount really due; and so mortgaged lands could not be retained after tender of the real debt, and this led to the process of filing a bill in chancery in order to acquire the absolute title. In general, however, it is true that all courts, chancery included, must give the same effect to positive laws, and must be subject to the same rules of interpretation. There are many cases of extreme hardship, but if the law is settled there can be no relief in equity inconsistent with the law; and so in construing agreements and conveyances, courts of law and equity are equally bound to get at the true meaning, and to give to them the same legal effect. The narrowmindedness of judges has indeed made a difference in some cases where there ought to have been none; as when there has been fraud or mistake, which in chancery would be held sufficient to avoid a written instrument or to warrant a modification, in the common law courts it was absurdly held that evidence of such fraud or mistake was inadmissible when the execution of the instrument was once proved. Thus in an action upon a bond, no matter what imposition had been practised, if the signature of the party was proved, the plaintiff must have judgment. So a policy of insurance or other written instrument could not in a trial at law be varied in its effect by the clearest proof of a mistake, but it must first be reformed in a court of equity. Exceptional cases like these have given to the English system, both of common law and equity, an anomalous character, and fully justify the remark of Blackstone that Grotius or Puffendorf, or any other of the great masters of jurisprudence, would have been as little able to discover by their own light the system of a court of equity in England as the system of a court of law. There was a large class of cases to which a jury trial was not adapted, as complicated accounts or multifarious interests in the subject of the suit; yet the former could have been disposed of by references, as has been the practice in the United States, and the other class could have been entertained without difficulty by a modification of the forms of pleading and the framing of issues, as has recently been provided for both in England and America by statute. Upon the whole, there is nothing in the nature of equity as distinguished from common law that would have made it necessary to have a distinct tribunal for its administration, so far as respects the principles involved, if the common law courts had exercised a proper degree of liberality in the discharge of their functions. Writers upon equity usually, however, insist upon 8 distinguishing features of the equity system: 1, the mode of proof, the parties themselves being made witnesses, or at least the plaintiff having the option to compel a discovery by defendant under oath; 2, mode of trial, which formerly was by taking depositions

of witnesses in writing; 3, mode of relief, a court of equity having power to decree a specific performance of an agreement, or to restrain a party by injunction from the commission of an injury, whereas a court of law, except in the actions of replevin and ejectment, and the proceeding by mandamus, could give no relief but pecuniary damages. In respect to the first, the experiment has been made of allowing parties to testify as witnesses in all modes of trial. Whether it will on the whole promote justice remains to be seen, but it is at least demonstrated that it can as well be done in common law courts as in equity. So also as to the mode of relief, the present judicial system of the state of New York, and the English common law procedure acts of 1852 and 1854, have given to the courts of law all the powers necessary for affording a complete remedy. As to the taking of the testimony of witnesses in writing, it has been the subject of great complaint as tending to delay and increase of expense, and among the recent reform measures in England it has been proposed to abrogate the practice altogether.—It would exceed our proper limits to go into an extended discussion of the principles of equity. They are substantially recognized in the judicial systems of all civilized nations, and hence the chancellors at an early period derived much assistance from the civil law, the most perfect code of law and equity which has ever been compiled, and in doing so did not infringe upon the common law, for that too received large contributions from the same source. The treatise of Bracton, written in the reign of Henry III., a very learned work and of great authority, was very largely made up from the digest of Justinian, and eminent judges have since that time been in the habit of referring to the same source in the settling of new or doubtful questions, and supplying deficiencies of the English law. The great distinction between the common law of England, and that of other countries derived from the civil law, is mainly that in the former equitable relief was excluded, so that another and distinct judicial department became necessary for the administration of equity merely. The prejudice of English lawyers against ecclesiastics, growing out of the introduction of the canon law by the latter, and their attempts to acquire jurisdiction over a large class of cases that did not properly appertain to the ecclesiastical courts, extended also without just cause to the administration of equity according to the civil law, and they uniformly resisted all improvement of the common law in that respect which could have been derived from the larger experience of Roman jurists. But though the establishment of the system of equity in England was thus irregular, and although, for want of assimilation between the different courts, the earlier chancellors were chargeable sometimes with the exercise of an arbitrary discretion without due regard to authority, yet the system that was gradually formed had never-

theless a basis of sound principle. "Equity has always had too much vitality within it, has been too conversant with action, and too inquisitive into motive, to become the mere creature of artifice. . . . No equitable doctrine which has not its root in an enlightened morality can be venerable or lasting." ("Papers of Juridical Society," vol. i.)—It remains only to notice the various measures for the improvement of equity courts in England and this country within a recent period. In 1826 a commission, consisting of the most eminent judges and jurists in England, was appointed to examine into the chancery system, and report what reform would be expedient. They took a large amount of testimony showing the existence of great abuses, but were deterred by timidity from the recommendation of any important change. In 1850 Lord Cottenham was induced by the enormous pressure of business, and the oppressive delay and expense in which suitors were involved, to adopt a summary mode of proceeding, the beneficial effect of which led to other and more important changes by acts of parliament. This was the substitution, in a large number of specified cases, in place of the old forms of pleading and mode of taking evidence, of a simple claim and the use of affidavits and counter affidavits, and the same course could in the discretion of the court be adopted in any other cases. In July, 1850, an act was passed enabling parties to agree on cases, and to take the opinion of the court thereon. Summary orders were authorized in a variety of cases. The formality of exceptions was dispensed with in taking accounts, and the court itself was required to decide upon objections to forms of pleadings instead of referring them to a master. In June, 1852, another act was passed, by which masters' offices were abolished; chambers were provided for the vice-chancellors, who were required to attend to many of the duties formerly discharged by masters. There was also a provision for the reference of questions to conveyancers, accountants, and other professional persons. Lord St. Leonards proposed, and strongly urged the adoption of another provision, that cases might be sent by the vice-chancellors to courts of law for their opinion, and that a corresponding power should be given to courts of law to get opinions of courts of equity. The object was to cut off all embarrassment growing out of the question of jurisdiction, and to have a final decision in the case in one or other court without having to commence again if a mistake as to the proper court had been made. The proposed amendment was not, however, adopted. In the same year further provisions were made for carrying out more fully the discharge of chamber business by the vice-chancellors, and adopting various other changes. Consistently with these reforms in chancery, proceedings have been taken for the improvement of the common law courts. A report of the commissioners on courts of common law, April 30 1858, recommend-

ed the combination of equity powers with the common law administration in the same court. They say that the consolidation of the elements of a complete remedy in the same court is obviously desirable, not to say imperatively necessary to the establishment of a consistent and rational system of jurisprudence. The legislation of parliament has, as yet, come far short of this recommendation, but in the acts of 1852 and 1854 great changes have been made in the forms of proceedings in the courts of common law, and some equitable powers have been given to the law courts. In the United States, the federal courts, established in 1789, have administered equity as well as law, without having separate organizations for that purpose. In the state of New York, by the constitution of 1846, the same system has been adopted, and has been carried out by the code of practice with great practical efficiency.

CHANDAH, or CHANDA, a town of Hindostan, capital of a province of the same name, in the territory of Nagpore, distant from the city of Nagpore 85 m., and 480 m. E. from Bombay; lat. 19° 57' N., long. 79° 28' E. The town is of considerable extent, surrounded by walls large enough for the heaviest guns. It contains a number of straggling houses, plantations, and a citadel, covering altogether a space about 6 m. in circuit. It was taken by the British, May 20, 1818.

CHANDELEUR ISLANDS lie E. of Chandeleur bay, on the S. E. coast of Louisiana. On the N. or smaller island is a fixed light 55 feet high.

CHANDERNAGORE, a French settlement in Bengal, on the Hoogly, lat. 22° 51' 26" N., long. 88° 9' 15" E., 17 m. N. of Calcutta. Pop. 81,285, viz: 80,581 Hindoos, 488 of mixed races, and 216 whites. The town presents a dilapidated appearance. Olive and Watson captured the town from the French in 1757, and dismantled the fortifications; but it was restored to the French by treaty in 1768. It was again occupied by the British on the breaking out of the republican war, and again restored to the French at the general peace in 1815. Some cotton is manufactured in the town, and the chief article of export is opium. The annual revenue of the town and territory is not much above \$80,000.

CHANDLER, ABIEL, a merchant of Boston, born in Concord, N. H., in 1778, died at Walpole, N. H., March 22, 1851, graduated at Harvard college in 1806. He died a widower, without children, and devised \$50,000 to Dartmouth college. He also bequeathed \$1,600 for the establishment of a scientific agricultural school, and the remainder of his estate to the asylum for the insane in New Hampshire.

CHANDLER, RICHARD, an English traveller, born at Elson, in Hampshire, in 1788, died in Feb. 1810. He was educated at Winchester, and at Queen's college, Oxford. An early publication of fragments from minor Greek poets made him known as a man of literary taste,

and his publication of *Marmora Oxoniensia*, the Arundelian marbles, with an accurate transcript of the original, and a good Latin translation, established his reputation as a scholar and an antiquary. In 1788, Chandler was sent with Revett the architect, and Pars the painter, to explore the antiquities of Ionia and Greece. After their return, they published as the result of their labors, in 1799, two magnificent folios of "Ionian Antiquities." Chandler published other works on the same subject. His posthumous life of Bishop Waynesflete, lord high chancellor to Henry VI., was published in 1811. He also undertook to refute the proposition of Bryant, that the Trojan war was a fiction, and that no such city as Troy ever existed. He vindicated the veracity of Homer, and especially the truth of his local descriptions.

CHANDLER, SAMUEL, a learned dissenting English minister, born in 1698, at Hungerford, Berkshire, died May 8, 1766. In an academy at Gloucester, he contracted a friendship with the famous Bishop Butler, and with Archbishop Secker, which continued to the end of their lives. Mr. Chandler, as Presbyterian preacher at Peckham, soon distinguished himself, but unfortunately lost the fortune of his wife in the South sea speculation. He was then a bookseller for some years, without relinquishing his pastoral duties. He also lectured, alternately with Dr. Lardner, at the Old Jewry, where, at last, he was chosen pastor, and where he labored for 40 years. Four volumes of his sermons were published, in accordance with his last desire, by Dr. Amory, in 1768, which were followed in 1777 by a volume of his notes and commentaries on the epistles of St. Paul.

CHANDLER, THOMAS BRADBURY, D.D., an Episcopal clergyman, born at Woodstock, Conn., April 26, 1726, died in 1790. He graduated at Yale college in 1745, in 1747 was appointed catechist and lay reader in St. John's church, Elizabethtown, N. J., and in 1751 went to England for the purpose of receiving episcopal ordination. Upon his return he was made rector of St. John's church, and in 1766 received the degree of D.D. from the university of Oxford. In the political discussions which immediately preceded the war of the revolution, he deemed it to be his duty to sustain the pretensions of the crown; but the current of popular feeling soon set so strongly in the opposite direction that his situation became unpleasant, and even dangerous. Accordingly, in 1776, he went to England, where he was received with every manifestation of the most respectful regard by many of the most eminent personages in the kingdom. On the conclusion of peace in 1783, his congregation earnestly requested him to return and resume his position as their rector. He returned to Elizabethtown in 1785, but in exceedingly ill health. The vestry did not think proper, however, to appoint another rector, and in compliance with their request he consented to retain the station during his life. During the 10 years which he passed in England the governmental-

lowed him an annuity of £300 sterling, in addition to his salary from the venerable society for the propagation of the gospel, and after his decease a pension was granted to his widow during her life. He was appointed to the bishopric of Nova Scotia, but declined the office in consequence of the progress of a cancerous affection in his face, which finally terminated his life. Dr. Chandler was one of the ablest writers in the American church. He was a zealous defender of Episcopacy, and in 1767 he published "An Appeal to the Public in behalf of the Church of England in America." Soon after the appearance of this work it was attacked simultaneously from various quarters, and among others, by Dr. Chauncy, of Boston, who published an answer in behalf of the non-Episcopal churches. In reply, Dr. Chandler published "The Appeal Defended," to which Chauncy responded, and in 1771 "The Appeal further Defended" appeared from Dr. Chandler. He also wrote many pamphlets and fugitive pieces.

CHANG-CHOO-FOO, a city of China, in the province of Fokien; pop. 800,000 to 1,000,000. It is situated in a valley embosomed in hills and intersected by a river. A wall,  $4\frac{1}{2}$  m. in circumference, surrounds it. At each of the cardinal points is a gate, consisting of a canal for boats and a door for the admission of foot passengers. The streets are from 10 to 12 feet wide, and many of them are well paved. The houses are usually two stories high, and shops are numerous and well furnished. There are two famous temples, now in a dilapidated condition, which are reputed to have attained the good old age of 1,200 years. The town is a busy, animated place, and is the centre of the silk manufacture of the province. It has extensive suburbs, containing large tile and sugar manufactories, while from an eminence near the city as many as 80 populous agricultural villages may be seen scattered over a plain 80 m. long by about 20 m. broad. The port of the city, Amoy, is about 86 m. distant. One of the most remarkable objects to be seen at Chang-choofoo is a bridge across the river. It is built upon 25 piles of stone, about 20 feet high and 30 feet apart. Large beams are laid from pile to pile; these again are crossed by smaller ones, which are covered with earth, and then paved with enormous blocks of granite, some of which are 45 feet long and  $2\frac{1}{2}$  feet broad. This singular structure is about 9 feet wide. Half its length on both sides is occupied with shops.

CHANGARNIER, NICOLAS ANNE THIÉDULÉ, a French general, born April 26, 1793, at Autun. He was educated at the military school of St. Cyr, enlisted in the royal body guards, then served as a lieutenant of the line in the campaign of 1823 in Spain, and finally entered the 1st regiment of royal guards. After the revolution of 1830, he left the service for a time; but reëntering the army, he went to Africa, where he soon distinguished himself. His presence of mind and dauntless intrepidity were shown conspicuously in 1836, in the retreat from Constantine to Bona,

amid the repeated assaults of the Arabs. He was now made lieutenant-colonel; gained further promotion by his exertions in the several campaigns in which he took an active part; became brigadier-general in 1840, after the expedition against Medeah; and in 1843 was made general of division. In 1847, the duke of Aumale, being governor-general of Algeria, caused Changarnier to be put in command of the district of Algiers; and on the revolution of February, the young prince resigned the governorship into his hands. Gen. Cavaignac having been appointed to this office by the new republican government, Changarnier repaired to Paris, and was appointed ambassador to Berlin, but did not leave Paris, his services being required there to protect the national assembly against insurrectionary movements. When Cavaignac was called to Paris and became minister of war, Changarnier was appointed his successor as governor-general of Algeria, which post he held for 5 months. Having been elected to the national assembly by the department of the Seine, he returned to Paris, and was, after the bloody days of June, invested by Gen. Cavaignac with the command of the Parisian national guards. He held this post when Louis Napoleon came into power as president, when he was also appointed by the national assembly commander of the regular troops, known as the army of Paris, then 100,000 strong. With these forces he was enabled to control at the same time the threatening movements of the Parisian mob and the ambitious aspirations of the president. He succeeded in accomplishing the former part of his twofold mission, especially on Jan. 29 and June 13, 1849, when his vigorous measures crushed all attempt at insurrection; but he was far from evincing the same boldness and foresight in his dealings with Louis Napoleon. While Changarnier was openly giving the assembly assurance that he was ready to protect them against all illegal measures, the president was actually engaged in carrying out his *coup d'état*. Changarnier found himself unexpectedly arrested on Dec. 2, after which he was banished from France. He has since resided chiefly in Belgium.

CHANGEUX, PIERRE JACQUES, a French savant, born at Orleans, Jan. 26, 1740, died Oct. 8, 1800. His speculations attracted the attention of D'Alembert, Condorcet, and Buffon, and a large space in the French Encyclopedia was given to an analysis of his most important work, entitled *Traité des extrêmes*. He was well known for his improvement of the barometer, and as the author of various writings and discoveries on this as well as on various other subjects.

CHANNEL ISLANDS, a group of islands in the English channel, off the N. W. coast of France. The principal ones are Jersey, Guernsey, Alderney, Sark, and Herm. Area, 130 sq. m.; pop. 76,065. They are the only portions of Normandy now belonging to Great Britain, to which they have remained attached ever since the conquest. They are, however, a very

expensive appendage to the crown. In the 6 months ending June 30, 1858, the imports from England amounted to £284,764.

CHANNING, EDWARD TYRRELL, an American scholar, born at Newport, R. I., Dec. 12, 1790, died at Cambridge, Feb. 8, 1858. He entered Harvard college in 1804, but was not graduated in course, as he was involved in the famous rebellion of 1807, in his junior year, on account of which a large number of the most prominent members of the two older classes were obliged to leave college; but received his degree a few years afterward. He studied law with his elder brother, Francis Dana Channing, in Boston, and was admitted to the bar. He gave his attention, however, and his affections, chiefly to literature, and carried forward a careful and critical study of the Greek and Roman classics, with that of the great writers of England. America had not then a literature; but the young men who were his contemporaries and friends have done much toward creating one. The "North American Review," the earliest permanent periodical in America, had its origin in a club of young men, who, in the winter of 1814-'15, projected a bi-monthly magazine. Mr. Willard Phillips, afterward author of the celebrated works on the law of insurance and of patents, was to be its editor. The committee on politics was composed of George Cabot, James Lloyd, John Lowell, Josiah Quincy, and others. The chief managers were to be President Kirkland, Jared Sparks, George Ticknor, Mr. Channing, Richard H. Dana, and John Gallison. At this time, Mr. William Tudor, author of the "Life of James Otis," returned from Europe with a matured plan for a quarterly review; and as the field was not large enough for two such works, the plan of the magazine was merged in that of Mr. Tudor, and the first number of the "North American Review" was issued in May, 1815, as a bi-monthly, the quarterly publication not being adopted until the commencement of the 8th volume. Mr. Tudor edited it for 2 years, and in 1817 it passed under the control of a club composed of the gentlemen named above, and a few others. Mr. Sparks was chief editor for one year, when the duty was undertaken by Mr. Channing, aided by his cousin, Richard H. Dana. Both gentlemen were then under the age of 30. Beside the Boston club, valuable aid was furnished to the "Review" by William C. Bryant, Gulian C. Verplanck, and James Kent, all of them then but little known to the public. In Oct. 1819, Mr. Channing was succeeded in the editorship of the "Review" by Mr. Edward Everett, having been appointed Boylston professor of rhetoric and oratory in Harvard university. This post he held for 32 years, resigning it in 1851. During all this time, the department of rhetoric and oratory, including the charge of all the English compositions of the students, and carrying great influence over their reading and taste, was filled by him with more than satisfaction to the public of reading and thinking men. His labors

were esteemed invaluable, and expressions of gratitude, both public and private, were his constant reward. He established and maintained for the college a high reputation for purity and elegance of style in composition and elocution, and gave direction to the reading of an entire generation of leading men in all departments of intellectual labor. He received the degree of doctor of laws from his university in 1851. Mr. Channing was a constant contributor to the "North American Review," almost to the time of his death. Among these contributions, the following may be noticed as the best specimens of his style of thought and composition: "Lalla Rookh," 1817; "Bob Roy," 1818; "Charles Brookden Brown," 1819; "Southey's Cowper," 1837; "Pryor's Goldsmith," 1837; "Sir Richard Steele," 1838; and "Chesterfield," 1840. In 1856 a volume of his lectures to the senior class at Cambridge was published, being 20 in number, with a memoir by R. H. Dana, jr., of Boston. The topics of the lectures are selected with judgment and taste, and treated with good sense and good feeling, and the style may be pronounced faultless. He contributed the life of his maternal grandfather, William Ellery, to Mr. Sparks's series of American biography. He was highly esteemed for the charm of his conversation, which was choice and pure in style, with an occasional use of a restrained but effective humor. He was a man of pure and just character, thoughtful and scholarly habits, with few and warm friendships; tolerant and liberal views of his fellow beings; a Unitarian of the old school in his theology, and a philanthropic conservative in his politics.

CHANNING, WALTER, M.D., an American physician, brother of the preceding, born at Newport, R. I., April 15, 1786. He entered Harvard college in 1804, but leaving in his junior year on account of the great rebellion of 1807, his degree was conferred upon him afterward out of course. He studied medicine much longer than the usual term, first under Dr. James Jackson in Boston, then under Prof. Barton in Philadelphia. He received the degree of M.D. from the university of Pennsylvania, afterward studied at the university of Edinburgh, and at Guy's and St. Thomas's hospitals in London, and began the practice of medicine in Boston in 1812. The same year he was appointed lecturer, and in 1815 professor, of obstetrics and medical jurisprudence in Harvard university, which office he filled until his resignation in 1854. In 1821, the Massachusetts general hospital was opened in Boston, and his teacher, Dr. James Jackson, was appointed its physician, who named Dr. Channing as his assistant. He labored in the hospital for a term of nearly 20 years, and saw it rise from one patient on Sept. 8, 1821, and 2 on the 20th of that month, to be one of the largest institutions on the continent. Dr. Channing has been a frequent contributor to medical and literary periodicals, beside publishing a volume of

"Miscellaneous Poems" (Boston, 1851), "A Physician's Vacation, or a Summer in Europe" (1856), and "Etherization in Childbirth," illustrated by 581 cases (1848). Of these works, the treatise on "Etherization in Childbirth" attracted great attention both in Europe and America, and had a marked effect on the state of that branch of science. Dr. Channing has been a constant student of English literature and of fine art, has written many fugitive pieces in prose and verse, and has always been a valued member of the best literary and scientific circles of Boston.

CHANNING, WILLIAM ELLERY, D.D., an American divine, brother of the preceding, born at Newport, R. I., April 7, 1780, died at Bennington, Vt., Oct. 3, 1842. The son of an eminent and hospitable lawyer, having his birth in a place already famed and attractive to strangers for its delightful climate and its beauty of ocean and rural scenery, surrounded in boyhood not only by the stately courtesy and strict domestic and religious usages of the descendants of the Puritans, but also by the more unrestrained habits of visitors from distant parts, the sphere of his youth was well suited to awaken his mind to diversified thought. His physical organization was at once delicate and vigorous; his appearance was grave and reflective both in play and in association with his elders; and he always regarded the tone of his character as due more to silent thought than any companionship. His mind was early occupied by religious and poetic conceptions, by contemplations of power and chivalrous honor, and he sometimes startled his associates by the vehemence with which he would repress any injustice that was attempted. Washington Allston was one of his playmates, and mentions as an instance of the rare uniformity of his moral dignity that even among boys he was always looked up to with respect. The lessons of his mother had developed his religious sensibility, and the doctrinal conversations then in vogue had turned his attention to theology, when at the age of 12 he was sent to New London, Conn., to prepare for college under his uncle, the Rev. Henry Channing. His father soon afterward died, and to the impression of the funeral and the influence of a revival which then swept over New England, with which his uncle as a moderate Calvinist sympathized, he attributed the commencement of his decidedly religious life. A competency was not left to his large family, and thus the necessity of independent energy was added to the elements which were forming his character. Esteemed by his friends for diligence and scholarship, for fine powers and pure habits, he entered the freshman class of Harvard college in 1794, where he led a blameless life and achieved the highest honors. In no single study superior to all of his classmates, he surpassed them all in versatility of talent and the wide range of his accomplishments, and especially in his power of varied and sustained written composition.

During his collegiate course the principles of the French revolution were at the climax of their influence in this country, shaking the old foundations of religion and social order, and diverting ardent young men from all the traditions of loyalty and reverence. As his character matured under such influences, he devoted himself more and more intently to aspirations after moral greatness. He studied with delight the Stoics, and was profoundly moved by the stern purity which they taught. In reading Hutcheson's essays on "Beauty and Virtue," in which the capacity of man for disinterested affection is asserted, virtue defined as self-devotion to the absolute good, and the universe described as a system of progressive order and beauty in which, under the will of Infinite Love, there are infinite possibilities of spiritual destiny, he attained that sublime view of the dignity of human nature which was ever afterward to "uphold and cherish" him. The work of Ferguson on "Civil Society" also concentrated his energies on the thought of social progress; and the newly revived interest in Shakespeare, to the study of whose writings the young men of Harvard were then passionately devoted, gave to him a powerful intellectual impulse. So deep was the impression made on him by the genius of the great dramatist, that through life one of his chief intellectual pleasures was furnished by recitations from his plays. The interest which he took in prevalent social agitations appears from the subject of the oration, the "Present Age," which he delivered at the graduation of his class. Having selected the profession of divinity, he spent 1½ years after leaving college as tutor in a private family at Richmond, Va., where his time was passed in agreeable social relations and in study, chiefly of political and theological subjects. He read numerous works of history and speculation, seeking the principles and form of that perfect society which was then the object of pursuit by the best minds in America, England, France, and Germany. His health suffered severely from his anxious examination of speculative doctrines, and in 1800 he returned to Newport to continue his studies. There he used to alternate between the public library and the sea-shore, on which he afterward affirmed that he had passed his hardest spiritual struggles. In 1801 he removed to Cambridge, being elected regent in the university, and his letters show how earnestly at this time he devoted himself both to theological erudition and spiritual discipline, equally admiring the condensed thought of Bishop Butler and the mystic piety of William Law. He was intimately connected with Dr. Samuel Hopkins, the celebrated disciple of Jonathan Edwards, whom he warmly esteemed; and when in 1802 he received from the Cambridge association the usual approbation to preach, it was supposed by many of the ministers that he would enlist on the side of extreme orthodoxy. Yet, as he subsequently stated, he was at this time an Arian, though tinged with ethical opin-

ions derived from Dr. Hopkins. His preaching at once attracted attention for its fervor and solemnity, and both the Brattle street and Federal street societies in Boston sought to obtain him for their pastor. Diffident both of his health and abilities, he chose to settle over the smaller society in Federal street, and was ordained June 1, 1808. His congregation increased with his own reputation for eloquence and devotion, till in 1809 the old church was taken down to give place to one larger. He invited his mother and sisters to transfer their home to his parsonage, but by degrees he found it difficult to relax the intensity of his thought even in the buoyancy and joyfulness of the social circle. Taciturn, or gravely conversing on themes of highest interest, his solemnity seemed to him inappropriate to festive scenes, and physical depression added to his distaste for them. His whole spiritual energy became concentrated in his labors as pastor, in sermons so exhausting that he was nearly prostrated at their close, in attending prayer-meetings and Sunday schools, and in unweariedly ministering to the sick and mourning. By the custom of exchanging with other clergymen, too, he became widely known throughout New England, and it was said of him and his friend, the younger Buckminster, that they had introduced a new era in preaching. When the disagreement in doctrine between the liberal and the conservative Congregationalists, after slumbering for some time, burst forth into the flame of the Unitarian controversy, Dr. Channing was the acknowledged head of the liberal party, and was obliged to take an active though uncongenial part in its defence. Irreconcilably opposed to the Calvinistic scheme and the doctrine of the Trinity, he was even more at variance with the Unitarianism of Priestley and Belsham; and occupying a middle ground in theology, he was unrivalled in his enthusiasm for moral and progressive ideas, and in his high estimate of the moral capacities of man. He blended in his system views which have generally been deemed discordant, and without checking himself by dialectic difficulties, he threw over his complex theology the charms of imagination and sentiment, and linked it with schemes of moral and social reform. During the period of most vehement debate his pure and glowing character won the constant admiration of his opponents. In 1814 he married, and soon after obtained some acquaintance with the master minds of Germany through the refined thought of Mme. de Staël. From Kant's doctrine of the reason he derived deeper reverence for the essential powers of man; by Schelling's intimations of the Divine Life everywhere manifested, he was made more devoutly conscious of the universal agency of God; and he was especially delighted with the heroic stoicism of Fichte and his assertion of the grandeur of the human will. But for his greatest pleasure and best discipline he was now indebted to Wordsworth, whom he esteemed next to Shakespeare,

and whose "Excursion" came to him like a revelation. With Wordsworth's mingled piety and heroism, humanity and earnest aspiration, with his all-vivifying imagination, recognizing greatness under lowliest disguises, and spreading sweet sanctions around every charity of social life, and with his longings to see reverence, loyalty, courtesy, and contentment established on the earth, he most closely sympathized. From this time he began to engage more actively in political and philanthropic movements. Outraged by the issue of the French revolution and the stern sway of Napoleon, he delivered, June 15, 1814, a discourse on the overthrow of the emperor and the "goodness of God in delivering the Christian world from military despotism." He early gave his sympathy and support to Noah Worcester, the father of the peace movement in this country, and in 1816 preached a discourse on war before the convention of the Congregational ministers of Massachusetts, which was printed and widely circulated, and prepared the way for the formation of peace societies in several of the states. The cause of temperance, of reform in penitentiary discipline and punishments, of missions, and of Bible distribution, all received his encouragement. His church was always thronged when he preached, and by various public discourses, among which were sermons occasioned by political crises, his Baltimore sermon on the Unitarian controversy, delivered in 1819, and his Dudgeon lecture on the "Evidences of Christianity," delivered at Cambridge in 1821, his celebrity was extended throughout the country. In 1822 he made a European tour, saw Wordsworth and Coleridge in England, the latter of whom wrote of him: "He has the love of wisdom and the wisdom of love," and visited France, Switzerland, and Italy. On his return he resumed his pastoral labors with more than his former energy, till in 1824 he received as colleague the Rev. Ezra Stiles Gannett; and from this time his efforts were more in the general field of literature and reform. His remarks on the character and writings of Milton, his two articles on the life and character of Bonaparte, and an article on Fénelon, published in the "Christian Examiner" between 1826 and 1829, attained a very wide celebrity, and brought him into correspondence with several of the most eminent literary persons in England and America. His writings are most characteristic and effective when treating questions of Christian philanthropy and social reform. In behalf of peace, temperance, education, and freedom, he repeatedly came before the public, and he examined with sympathizing respect and anxious scrutiny every movement which promised more happy social relations. Without accepting absolutely the doctrine of non-resistance, he remonstrated against war, reviewing its crimes and miseries, in 1835, when there was danger of a rupture with France, and in 1839, when there was a prospect of conflict with Great Britain. The wide scope which he gave to education is seen in some of the most



valuable of his lectures, especially that on "Self-Culture" delivered in 1839, and the series on the "Elevation of the Laboring Classes," delivered in 1840. The appeal in these discourses to whatever of character or manliness there may be in the young is most touching and inspiring. He was one of the earliest agitators of anti-slavery in this country, his attention having been specially turned to the subject by a winter's residence on the island of Santa Cruz in 1830. His first efforts were to arouse the moral feeling against slavery, and it was not till 1837 that he deemed special political action needful. In that year, by addressing a public meeting in Faneuil Hall, he became nearly identified before the public with the abolition movement, into which he sought to infuse his own spirit of calmness and candor. His work on slavery, published in 1841, had a wide circulation, and the last public act of his life was to deliver an address at Lenox, Mass., Aug. 1, 1842, on the anniversary of the emancipation in the West Indies. During the latter years of his life he resided in winter in Boston, and in summer at Newport, and his death was caused by an attack of typhus fever while pursuing a mountain excursion. Dr. Channing has been characterized as belonging to the poetic order of philosophic minds, and not only his writings but also the traditions of his personal character are needed to adequately estimate him. In unvarying moral dignity, and in the wide scope and constant glow of his moral feelings, he has perhaps never been surpassed. His words as well as his opinions were usually chosen from among those which express the sunny, hopeful, and possible view of things, and so predominate in his style that it is transparent with moral beauty. He should be judged as he is remembered, not merely as a thinker, but as a preacher and a Christian. He was buried at Mount Auburn, where a monument, designed by his friend Washington Allston, was dedicated to his memory.—The most complete edition of his works was published in Boston, in 1848, in 6 vols. 12mo. In England appeared in 1849 a selection of his works by Mountford, under the title, "Beauties of Channing." Many of his essays have been translated into German at various times, and a more complete selection of his works was translated by Sydow and Schulze, and appeared in Berlin, 1850-'51. His biographer was his nephew, the Rev. William Henry Channing, whose work was published in 1843, simultaneously in Boston and London, under the title of "Memoirs of William Ellery Channing, with Extracts from his Correspondence and Manuscripts." An elaborate notice of Dr. Channing, from the pen of M. Edouard Laboulaye, appeared in the *Journal des Débats* in 1852, and subsequently was published (*Œuvres sociales de W. E. Channing, précédées d'une introduction*, by M. Edouard Laboulaye, member of the institute. This work attracted much attention in France and Belgium, and was favorably reviewed in the *Revue des deux mondes*, *Revue de Paris*, *Sicéle*, and in Belgium in an essay written by M.

van Niemen. In 1857 appeared, from the pen of an English lady, a French work based upon the Rev. W. H. Channing's memoirs, and entitled *Channing, sa vie et ses œuvres, avec une préface de M. Charles de Rémusat* (Paris, Didier and Co.). M. de Rémusat's preface is written in a very appreciative spirit, and exhibits the great interest which Dr. Channing begins to awaken in the best minds of Europe. The authors of the work undertook it as a labor of love, and does not disclose her name.

CHANNING, WILLIAM HENRY, an American clergyman, nephew of the preceding, born in Boston, May 25, 1810. His father, Francis Dana Channing, died when he was very young. His early education was received at an academy in Lancaster, Mass., and at the Boston Latin school. He graduated at Harvard college in 1829, and at the Cambridge divinity school in 1833. He has been settled over religious societies in Meadville, Penn., New York city, Cincinnati, Nashua, Boston, Rochester, and Liverpool, Eng. He has edited the "Western Messenger" one year, the "Present," the "Harbinger," and the "Spirit of the Age," and has also contributed articles to the "Dial," the "Christian Examiner," and the "North American Review." He has written and published the "Translation of Jouffroy's Ethics" (Boston, 1840, 2 vols.), in Ripley's "Specimens of Foreign Literature;" "Memoirs of Dr. William Ellery Channing," 8 vols. (Boston, 1843); "Life and Writings of James H. Perkins," 2 vols.; "Memoirs of Madame Ossoli (Margaret Fuller)," in connection with R. W. Emerson and J. F. Clarke; sermons, reviews, and miscellanies. He is at present pastor of the Hope street church (Unitarian), Liverpool, Eng., formerly under the pastoral care of the Rev. James Martineau. Mr. Channing has labored much in social reforms, and his views of the church and society spring from central principles of love and unity in the Christian faith. He belongs in catholicity of sympathy to the broad or universal church, and he advocates his sentiments with much zeal and eloquence. His addresses and discourses are often extemporaneous, and delivered in a style highly impassioned and imaginative. The vision of a more Christian and fraternized form of human society, the kingdom of Jesus Christ on earth created by the descent and inspiration of the gospel faith in God and man, fills his horizon, and enlists his efforts. Mr. Channing, during a considerable part of his career, has been an earnest advocate of society reform and reconstruction under some associated plan similar to that of the French socialists, but of late years he has devoted his gifts of speech and pen more entirely to the church as the grand lever of human elevation.

CHANT (It. *canto fermo*; Fr. *plein chant*), a modification of song, between air and recitative, such as is adapted to the psalms and litanies. This species of music is very ancient. St. Paul exhorts the early Christians to chant psalms and canticles. Pliny the Younger men-

tions that the Christians assembled at break of day to chant their hymns. The chant grew with the progress of Christianity. Pope Sylvester, in 339, founded a school for its culture; and St. Ambrose, bishop of Milan from 374 to 397, arranged from the old Greek music a new description of chant, the Ambrosian, which remained in use until superseded by the chant arranged by Pope Gregory, 590 to 604, hence called the Gregorian or Roman chant, and which, somewhat modified, is in use at the present day. Chants are, properly, of 8 kinds: the monody, sung by 1 voice; the antiphony, alternately by 2; and the choral, by all voices.

OHANTAL, JEANNE FRANÇOISE FREMIOT DE, a saint of the Roman Catholic church, born at Dijon in 1572, died at Moulins in 1641. Her husband was killed while hunting, and although she was only 28 years of age, she took a vow never to marry again. From this time her sole occupation and recreation was the education of her children and the care of the sick and the poor. She became acquainted with St. Francis de Sales in 1604, and from that time placed herself entirely under his direction. He communicated to her his project for the establishment of the order of the Visitation, and she so far entered into his views that in the year 1610 she laid the first foundation of that order at Annecy. She established her children in life, and then devoted the remainder of her days to the order. At the time of her death she had founded 37 houses of the Visitation. In the year 1700 they numbered 150, and about 6,600 members. Her beatification took place in 1751. She was canonized by Clement XII. in 1767. Her life and letters were published in Paris, 1779.

OHANTIBUN, or CHAN-TI-BUN, an inland town of Siam, capital of a province of the same name, situated on a river at the foot of a chain of mountains, 18 m. E. from the gulf of Siam, in lat. 12° 45' N. and long. 102° 18' E. It produces pepper, rice, gamboge, cardamoms, rosewood, dye-woods, ivory, and benzoin. Foreign commerce being prohibited, the entire produce of the country is removed annually to Bangkok, 150 m. S. E. Near the town are mines of precious stones. Pop. estimated at 30,000, a large proportion of whom are Chinese.

OHANTILLY, a charming locality in the vicinity of Paris, department of Oise, pop. 2,454, famed for its lace, porcelain and other manufactures, and annual horse races. Its historical celebrity is due to the castle which since 1632 has been the seat of the Condé family. It was given to them by Louis XIV., having previously belonged to the Montmorency family, and was bequeathed to the duke of Aumale in 1830. The great Condé gave in this castle splendid entertainments to the king, the poets, and the eminent persons of France. That given to the king in 1671 was rendered remarkable by the suicide of Vatel, the head steward, who ran himself through with a sword, because the fish did not arrive in time for dinner. The grand château was destroyed by the mob at the first revolution;

there now remain only the "petit château," the "château d'Enghien," and superb stables, capable of lodging 240 horses, but untenanted. In the parish church of Ohantilly, the remains of Coligni were interred after the massacre of St. Bartholomew's, after his head had been cut off and sent to Catharine de' Medici. An interesting description of the beautiful forest, and the various attractions of Ohantilly, occurs in Lord Mahon's "Life of Condé." The pictures of Condé's battles were in the petit château down to 1852, but have since been removed to Twickenham.

OHANTREY, SIR FRANCIS, an English sculptor, born in Derbyshire, April 7, 1782, died Nov. 25, 1841. Showing a taste for sculpture, he was placed with a carver in Sheffield; but finding his genius adapted to a higher walk in art, he began to model in clay, and established himself successively in Dublin, Edinburgh, and London. He made the latter place his home, and by the assistance of Nollekens and his own talents soon acquired considerable reputation. He was elected a royal academician in 1818, and in 1837 was knighted. As a maker of busts and a monumental sculptor, Ohantrey held a respectable position. He executed an immense number of works, among the best of which are his bronze statues of William Pitt, Canning, and Bishop Heber, and the bust of Walter Scott. His statue in marble of Washington is in the state house at Boston. He amassed considerable property, the greater part of which he directed to be invested for the encouragement of art.

CHANTRY, an ecclesiastical endowment to provide for the celebration of masses for the prosperity of the living or repose of the dead. Previous to the reformation, chantries were very numerous, almost every family of importance having founded one or more. Wealthy founders would endow a church or monastery, in which religious services should be celebrated continually. For less wealthy founders, an altar in the church of the locality was made to suffice. Sometimes small chapels, called chantry chapels, were appended to the main edifice. The residences of priests engaged in the services were known as chantry houses, chantries, or colleges. Chantries were dissolved in England by King Edward VI., and all endowments for the purpose confiscated to the king.

OHAOS (Gr. *chaos*, from *cha*, to be open or void), in classical mythology, either the empty and infinite space which existed before all things, or the *mélange* of all the elements, the confused mass out of which the ordered creation was formed. By the poets it was personified, and made the most ancient of the gods, the father of Erebus and Night. The principle of the fecundity of chaos assumed several modifications in the Greek systems of philosophy. Something similar to the Greek conception of chaos is found in the Phœnician, Chaldean, and Indian cosmogonies; and Ovid's description of the genesis of the universe out of chaos has so many features in common with the Mosiac

account of creation, that it has often been supposed to be derived from it.—In natural history, chaos is the name given by Linnaeus to animals and plants of the lowest orders, which have imperfect parts.

CHAPALA, a lake in Mexico, between the states of Michoacan and Guadalajara. It contains many islands, and is traversed by the Rio Grande de Lerma. Area about 1,800 sq. m.

CHAPEAUX (Fr. hats), a name applied to the partisans of France in Sweden in the 18th century, while those of Russia were called *bonnets* (caps). Having instigated war against Russia in 1741, and again in 1756, the calamities thus inflicted upon Sweden impaired the popularity of the *chapeaux*. Succeeding in 1769 in regaining their former position, the party was soon extinguished altogether by the advent of Gustavus III. and his reforms.—The same names were also formerly applied in the French academy, the *chapeaux* constituting the party supported by the philosophers and the public, and the *bonnets* that upheld by the clergy and the court.

CHAPEL, a place, not a church, dedicated to religious worship. The distinction between a chapel and a church lay formerly in the publicity of the worship to be performed; churches being for general use, and chapels or little churches being for the special use of private individuals or particular households. From this the use of the term has been extended so as technically to include all religious edifices not of the established faith. Thus in continental Europe Anglican places of worship are chapels, while in England Roman Catholic and dissenting places of worship are styled chapels. There are also in the established church itself in England chapels of ease to parish churches, built for the accommodation of worshippers in populous or extensive parishes. In Roman Catholic churches portions of the main building are often set aside and dedicated to particular saints. These are called chapels, in which a service is performed in honor of the saint.

CHAPEL HILL, a post village of Orange co., N. C. It occupies a healthy and agreeable site on the New Hope river, an affluent of the Cape Fear, and is the seat of the university of North Carolina, a flourishing institution founded in 1789. See NORTH CAROLINA, UNIVERSITY OF.

CHAPELAIN, JEAN, one of the earliest members of the French academy, born in Paris Dec. 4, 1595, died Feb. 22, 1674. Having gained a high literary reputation, more by ingratiating himself with Richelieu and other influential persons than by his intrinsic merits, he conceived the project of writing an epic, *La pucelle*, which proved a total failure, although he spent over 20 years upon it. The first 12 cantos appeared in 1656; and to so high a pitch had public expectation been wrought, that, notwithstanding the adverse criticisms of Boileau and Voiture, 6 editions came forth within the following 18 months. Eight new parts appeared in 1757, and the concluding 4 parts which never were printed, are in MS.

in the imperial library of Paris. Richelieu, to whom he dedicated a poem and whom he assisted in concocting literary works, conferred a pension on him; he presided over the organization of the French academy, took a conspicuous part in the early labors of that body, and as academical critic upon Corneille's *Cid*, and possessed during nearly 40 years a literary prestige, which was broken by his *Pucelle*, although he remained in favor with the court.

CHAPERON, formerly in France a kind of cap or covering for the head, worn by men and women of all ranks. It was thus used till the reign of Charles VII., when it was appropriated to barristers, doctors, and licentiates in colleges. It afterward became the badge of political parties, and the red and blue chaperons are distinguished in French history like the red and white roses in England, or like the adverse ribbons of Constantinople. The name was subsequently conferred upon some slight heraldic devices placed upon the foreheads of horses in pompous funeral processions. The cap of the knights of the garter is still called a chaperon.—The term is also applied to persons who accompany ladies as guides or protectors at balls or other public occasions.

CHAPIN, CALVIN, D.D., an American Congregational minister, born in Springfield, Mass. in 1768, died in Wethersfield, Ct., March 17, 1851. He was a prominent member of the missionary, Bible, and temperance societies. He was the first recording secretary of the American board of commissioners for foreign missions, and held that office for 33 years.

CHAPIN, EDWIN HUBBELL, D.D., an American clergyman, born in Union Village, Washington co., N. Y., Dec. 29, 1814, completed his formal education in a seminary in Bennington, Vt. He commenced preaching in the year 1837, and was first settled over a union society of Unitarians and Universalists in Richmond, Va. Thence he removed to Charlestown, Mass., in 1840; then to Boston in 1846; and from Boston to New York in 1848, to take charge of the 4th Universalist church in that city, of which he still remains pastor. He received the degree of D.D. in 1856, from Harvard university, which had previously conferred on him the honorary degree of A.M. Dr. Chapin has always been connected with the Universalist denomination; but his sympathies far outrun the technical boundaries of a sect. His religious views were originally affected powerfully by Dr. Channing's published writings, as well as by the leaders of the Universalist faith; and he is warmly interested in all the literature and tendencies, issuing from the most free and thoughtful circles of Protestant Christendom, that are beginning to receive the title of "the Broad Church movement." His reputation has long been established as one of the most powerful and effective pulpit orators of America. The prominent characteristics of his eloquence, apart from the earnestness and passion with which it is always vital, are imagination and pathos, interpreted

by a voice of remarkable richness and volume. Few men are so liberally endowed with the capacity for vigorous and connected extempore address. It is his custom, however, to produce one carefully written discourse every week, which is spoken from manuscript, and, in the morning service of his church, to preach with very little verbal preparation. The church over which Dr. Chapin presides is situated in Broadway, and the morning and particularly the evening services are so numerously attended, that it is frequently difficult for a stranger to find a seat. The congregation comprises many of the young and active men of New York, and persons of the most conflicting theological opinions. In addition to the labors demanded by so large a parish, Dr. Chapin finds time for a great deal of service as a speaker before lyceums and literary associations; while as a temperance advocate, and a platform orator in behalf of public movements in which moral interests are prominent, he exercises a continually increasing influence. His speech before the peace convention at Frankfort-on-the-Main, in 1850, is perhaps the most celebrated of all his successes in popular oratory. Dr. Chapin's published works consist of several volumes of sermons and religious lectures, and a few occasional discourses. One of those volumes, "The Crown of Thorns," has obtained a very wide circulation, and its devout and cheerful spirit has made it welcome beyond the circle of those who are in sympathy with the author's theological creed.

CHAPIN, STEPHEN, D.D., an American clergyman, born in Milford, Mass., Nov. 4, 1778, died in Washington, D. C., Oct. 1, 1845. The son of pious parents, his thoughts were turned at an early age to the subject of personal religion, and while yet a youth he became a member of the Congregational church in his native town. He soon after began to prepare himself for college, with a view to the profession of the Christian ministry, and graduated at Harvard university in 1804. After leaving college he went to study theology with the celebrated Dr. Emmons, of Franklin. After a brief period of study with that able theologian, he was called to the pastoral care of the Congregational church in Hillsborough, N. H., where he was ordained in 1805. Disagreeing with his church in reference to what was known as the "Half-way Covenant," not only refusing to baptize the children of non-professors himself, but declining to exchange with other ministers with a view to their performance of the rite in his parish, his pastoral relation in Hillsborough was severed early in 1809. In November of the same year he accepted the pastoral charge of the Congregational church in Mount Vernon, N. H. The controversy into which he had been drawn with his people in Hillsborough led him to a more particular examination of the whole subject of church membership and church ordinances, the result of which was his adoption of the general views held by the Baptist denomination. He accordingly re-

linquished his pastoral charge in Mount Vernon early in the autumn of 1818, and in November of that year was baptized by the Rev. Dr. Baldwin, pastor of the 3d Baptist church in Boston. In 1819 he became pastor of the Baptist church in North Yarmouth, Me., where he remained but a year or two, having been called, in 1822, to the chair of theology in the newly established college at Waterville, Me. He entered on the discharge of the duties of his professorship with characteristic industry and zeal, and enjoyed the entire confidence of his patrons until he was called to fill a more responsible post. An effort having been made to reconstitute Columbian college at Washington, and obtain an endowment which should secure it against the embarrassments under which it had for some time labored, Dr. Chapin was selected as a suitable person to preside over its affairs. He was elected president of that institution in 1828, and continued to preside over it with marked ability until 1841, when he resigned a post which he had filled with honor to himself and with advantage to the college. He continued to reside in Washington until the time of his death. Dr. Chapin was a scholar of large attainments, amiable in temper, yet earnest and energetic; prudent, but always true to his convictions and firm in maintaining them.

CHAPIN, WILLIAM, an instructor of the blind, born in Philadelphia in 1802, occupied the early part of his life in literary pursuits and in the publishing business. In May, 1840, he assumed the function of principal of the Ohio institution for the blind, and did much to improve the system of education there, the number of pupils having increased under his administration from 18 to 72. Having investigated kindred institutions in various parts of the United States, he visited Europe in 1845, and embodied the results of his investigations in a report to the legislature of Ohio, "On the Benevolent Institutions of Great Britain and France." Resigning his post in Ohio in 1846, owing to changes made by the legislature, he was elected in Sept. 1849, principal of the Pennsylvania institution for the blind, which post he still holds.

CHAPLAIN, a clergyman appointed to say prayers and to perform divine service, and attached to some body of persons or the household of an individual for that purpose. In the United States chaplains are appointed to legislative bodies, hospitals, prisons, regiments, and vessels of war. In Europe chaplains are attached to courts, and also sometimes to the families of the nobility. The origin of the term is generally associated with chapel. It belongs both to the Catholic and Protestant churches. In England, chaplains are exempted, in respect of their appointment, from the operation of the laws against plurality of benefices.

CHAPLET. See BEADS.

CHAPLIN, JEREMIAH, D.D., an American minister of the Baptist denomination, born in Rowley, Mass., Jan. 2, 1776, died at Hamilton,

N. Y., May, 1841. His heart was imbued with religious feeling at a very early age. He graduated at the college of Rhode Island, afterward Brown university, in 1799. After graduating he was immediately elected tutor, and remained in that capacity for about 8 years. In 1802, he became the pastor of the Baptist church in Danvers, Mass., which relation he sustained until 1818, when he was selected to take charge of the literary and theological seminary then about to be commenced in Waterville, Me. This institution had its origin in a desire to promote theological education among the Baptists of New England. More comprehensive views soon prevailed, and the seminary was changed into a college in 1820. In 1821 Dr. Chaplin was elected its first president. He administered the government of the new college with great discretion and success for about 12 years. After retiring from the presidency of the college, he became pastor of the Baptist church in Rowley, his native town. Subsequently he became the pastor of the Baptist church in Willington, Conn., where he remained till near the close of his life. Few men of the past generation were more entitled to the respect and veneration of mankind than Dr. Chaplin. His own denomination, especially, owe him a debt of gratitude for his powerful and indefatigable efforts to promote the education of its ministry.

CHAPMAN, GEORGE, an English poet, the earliest English translator of Homer, born probably at Hitching Hill, in Hertfordshire, in 1557, died in London, May 12, 1634. After studying 2 years in Trinity college, Oxford, where he was distinguished for his knowledge of the classics, he went in 1576 to London, where he enjoyed the friendship of Spenser, Shakespeare, Marlowe, and Jonson, and the patronage of King James and Prince Henry. He published a translation of 7 books of the *Iliad* in 1598; of 12 books in 1600; and of the whole poem in 1608. It is in the lofty 14-syllable English verse, and of a vigorous and imaginative character more accordant with the spirit than the letter of the original. It has retained its popularity both with poets and scholars, though less polished and less accurate than the version of Pope. Pope said that it was "something like what one might imagine Homer himself would have written before he arrived at years of discretion;" Waller could not read it without transport; and Keats has expressed his admiration of it in one of the most beautiful of his sonnets. Chapman afterward translated the *Odyssey*, the Homeric hymns, and portions of Ovid, Terence, Musæus, and Petrarch. He was also a voluminous writer of plays, only passages of which are now esteemed. He was associated with Jonson, Marston, and others, in writing the comedy of "Eastward, Ho!" which contained severe satirical reflections upon Scotchmen, and was therefore so ungrateful to King James, that he caused the authors to be for a short time imprisoned. An imitation of Terence entitled "All Fools," was highly applauded by

his contemporaries; and portions of the tragedy of "Bussy D'Ambois" were highly esteemed by Charles Lamb. A handsome edition of his translations from Homer was published in London, in 5 vols., in 1858.

CHAPMAN, JOHN GANASY, an American artist, born in Alexandria, Va. Early indicating his taste for design, he was enabled by the liberality of a friend to visit Rome, and to study and practise his art there for several years. After his return to the United States, he removed to the city of New York, where, by his rare union of mechanical ingenuity with artistic taste, he rapidly obtained ample employment. He has executed many original designs for the illustration of works of taste or fancy, among which are Harper's Bible, Schmidt's "Tales," and Whittier's "Songs of Labor." He also painted the "Baptism of Pocahontas" for one of the panels in the rotunda at Washington. In 1848 he again visited Rome, where he has since resided.

CHAPONE, Mrs. (HESTER MULSO), an English authoress, born in Northamptonshire in 1727, died at Hadley, Dec. 21, 1801. At the age of 9 years she is said to have written a romance, and she early studied several languages and treatises on morals and philosophy. Her first publications were the story of "Fidelia" in the "Adventurer," and some verses prefixed to her friend Miss Carter's translation of *Epictetus*. In 1760 she married Mr. Chapone, who died within less than a year. In 1770 she accompanied Mrs. Montague to Scotland, at whose request she soon after published her "Letters on the Improvement of the Mind." In a volume of "Miscellanies," which subsequently appeared, are several letters addressed by her to Richardson, controverting some of the maxims put forward by him in his "Clarissa Harlowe."

CHAPPOO, a maritime town in the province of Che-kiang, China, situated on a promontory on the N. side of the estuary of the Tchen-tang (or Tsen-tang), communicating by canal with Hang-chow-foo, of which place it is the port. Its suburbs, which are very extensive, and the seat of most of the trades, extend along the water's edge. About half a mile in their rear is the walled town, 5 m. in circumference, enclosed within which is the Tartar town. Its harbor is very shallow, and the tides are rapid, but there is deep water in the roadstead, and all the trade of China with Japan is carried on from this port. The soil of the neighboring country is extremely fertile and well watered, and the surface is interspersed with numerous villages, pagodas, temples, &c. The adjacent heights, fortified during the late war, were captured by the British, after an obstinate resistance, May 18, 1842.

CHAPPE, CLAUDE, a French engineer and mechanic, born at Brulon in 1768, died Jan. 23, 1805. Having invented an ingenious system of signals to communicate at a distance with his friends, he presented it to the French legislative assembly in 1792. It was successfully

tried between Paris and Lille, on a length of 48 leagues, and was adopted by the government. Chappe established several lines in France, and the one running N. was first put in motion to announce the recapture of the town of Condé from the Prussians. The inventor was at once rewarded by the convention, which, by a decree, appointed him *ingénieur télégraphe*. The lines were extended all over France, and the system was also adopted, with some alterations, through Germany and England. The attacks to which he was subjected, by persons jealous of his invention, preyed so much upon his mind that he committed suicide.

CHAPPE D'AUTEROCHÉ, JEAN, a French astronomer, born at Mauriac, Auvergne, in 1722, died Aug. 1, 1769, in California. He was a priest, but giving his whole attention to astronomy, he became one of the assistants of Cassini in delineating the general map of France, and edited the astronomical tables of Dr. Halley. In 1760 he was designated by the academy to make an observation of the transit of Venus over the sun's disk, which Halley announced would happen June 6, 1761. He consequently set out for Tobolsk, in Siberia, which was pointed out as the most favorable point of observation. His mission was successfully accomplished; and returning to France at the end of 2 years, he published in 1768 his *Voyage en Sibirie*. The following year he sailed for California to observe another transit of Venus, which was to take place June 8. He was equally successful on this occasion, but died soon afterward. The results of his last expedition were published by O. F. Cassini, under the title of *Voyage de la Californie*.

CHAPTAL, JEAN ANTOINE CLAUDE, count de Chanteloup, a French chemist and statesman, born at Nogaret, Lozère, June 4, 1756, died in Paris, July 30, 1832. During his medical studies and practice he devoted much research to the science of chemistry, in which he soon became eminent, and was appointed professor at Montpellier, where he taught successfully the doctrines of Black, Lavoisier, and Cavendish. His uncle, a wealthy physician, left him a fortune, with which he established chemical works near Montpellier, being the first attempted of the kind, and by which he was soon enabled to produce various chemicals hitherto imported, such as the mineral acids, alum, soda, and salts of lead. The authorities of Languedoc heaped honors on him; the Spanish government offered him a pension of 56,000 francs to go to Spain; and according to his biographer, Washington wrote 8 times to Chaptal, inviting him to America. After the outbreak of the French revolution he published a political pamphlet, entitled "Dialogue between a Montagnard and a Girondist," and was arrested, but through the intercession of friends was liberated. The committee of public safety placed him in charge of the powder mills of Grenelle, which produced, under his management, 8,500 lbs. of gunpowder daily. Once

more returning to Montpellier, he was elected member of the institute, and devoted himself to science, till Bonaparte summoned him to the council of state, where he had the supervision of national education. When Lucien Bonaparte resigned the portfolio of the interior, Chaptal took his place as minister, and for 4 years performed the duties of the department with much administrative ability. He founded the conservatory, school of arts, and society for encouragement of industry, introduced the modern French system of weights and measures, established a model farm and a system of distribution of agricultural seeds, reorganized the prisons and hospitals, extended the network of highways over the face of the country, and organized the carrying out of the plans of extension of the Louvre and rues de Rivoli and Castiglione, that have since been completed by Napoleon III. In the midst of his usefulness a misunderstanding arose between him and Napoleon; some accounts say, because Chaptal refused to report in favor of beet root over cane sugar, while others assert that it was on account of an actress, named Mlle. Bourgois, to whom both emperor and minister paid their devotions. A reconciliation afterward took place, and the ex-minister was made count, senator, and grand officer of the legion of honor. On Napoleon's return from Elba, the count was appointed director-general of commerce and manufactures. Louis XVIII. struck him from the list of peers, but left him on the roll of the academy. He died at a ripe age, a useful, but not a brilliant man. His fortune was much reduced by the indiscretions of his son. His works are all on chemical subjects, and may yet be consulted with advantage, especially his "Treatise on Chemistry applied to the Arts."

CHAPTER, the community of canons or prebends attached to a cathedral or collegiate church, and presided over by a dean. (See CANON.) They govern the diocese during the vacancy of the see, in some countries have the right of choosing the bishop, and act as his advisers. In England, the appointing privilege was assumed by Henry VIII. as a royal prerogative; it is also exercised by the crown in Prussia and other Protestant countries. Some of the Roman Catholic cathedrals in England have their chapters, but there are none in the United States. They were suppressed in France by the civil constitution of the clergy, but restored by the concordat of 1802. The title of chapter is applied not only to the canons in their collective capacity, but also to their meetings, and to the place in which the latter are held. It is given to the assembly of members of a religious order, to the convocations of the military orders of the middle ages, and even to the meetings of certain corporations of mechanics and tradesmen. It was first used about the 8th century, and is supposed to have originated in the fact that at such sessions it was customary to read some or all of the chapters containing the rules of the community.

CHAPULTEPEC, CASTLE OF, a Mexican fortress stormed by the Americans under Gen. Scott, Sept. 18, 1847. The American army, proceeding from victory to victory, had defeated the enemy in 5 pitched battles, beside many skirmishes, and was now under the walls of the city of Mexico. This ancient city lies in the centre of a plain in which are numerous volcanic heights rising like islands from a morass. About 2 m. S. W. from the city is one of these heights, known as the rock of Chapultepec. A strong castle crowns the height, having a frontage of 900 feet, heavily armed. The work is designed as a protection to a causeway which forms the approach to the city. At the base of the hill, in front, is the wall of an aqueduct. In the rear is the old powder mill known as Molino del Rey. Numerous old cypress trees surround the spot. Altogether the position is a difficult one to attack, and easy to be defended. Gen. Bravo with a picked force held the position. At the time of the assault there were in it a crowd of officers of rank, beside the military academy, with the students. Bravo was considered one of the ablest of the Mexican officers, to whose hands it would have been safe to intrust any defence however important. Santa Anna with the bulk of the army was in the city of Mexico, and in full communication with the castle. Affairs were in this position when Scott stormed and took Molino del Rey. His next step was anxiously looked for by the enemy. He had already advanced a force near to the city walls, and seemed to be making preparations for attack. Another portion of his force menaced Chapultepec in a similar manner. Blows had fallen so rapidly in places where they were least looked for, that Santa Anna was at a loss to divine whether the city or the castle were the real object of attack. Bravo sent word to Santa Anna that Scott would certainly first assault the castle, being too skilful a general to leave such a work in his rear. It was not till the Americans had all preparations ready for the assault—indeed, not until the castle was taken—that the Mexicans discovered that the demonstration against the city had been only a feint to prevent them from reinforcing Chapultepec. Scott from the first had determined to carry this work. His loss in killed and wounded at Molino indicated a different mode of attack from that by which the victory of the 8th was won. Accordingly, on the evening of Sept. 11, he ordered Colonels Lee and Hunger to erect 4 batteries on a ridge facing the fortress. These works were placed under the command respectively of Capt. Drum, Hagner, Brooks, and Lieut. Stone. The plan of operations was simple: after the place should have been sufficiently battered, a column under Gen. Pillow was to assault on its W. side; another column under Gen. Quitman on the opposite, or S. E. side; while the reserve under Gen. Worth was to gain the N. side, and there either to assist in the attack or to act as circumstances might direct. Pillow's

and Quitman's columns were each headed by a storming party of 250, detailed from the regular troops; Pillow's being commanded by Capt. McKenzie of the 2d artillery, and Quitman's by Capt. Casey of the 3d infantry. Scaling ladders and all necessary appliances were held in readiness. Early on the morning of the 12th the Mexicans discovered the American batteries and opened fire. Firing was continued from both sides all that day. On the 18th firing was resumed for some hours. About 11 o'clock the American guns slackened, and for a few moments entirely ceased. This was the preconcerted signal for the assault. Having made several breaches through the stone wall behind the cypresses, the attack parties rushed through the trees and straight at the hill. The American guns reopened and hurled a storm of shot and shell over their heads. At the base of the hill considerable fighting took place. Here Pillow was disabled, and Cadwallader took command. The Americans ascended the acclivity amid discharges of grape and musketry that thinned their ranks. Between them and the castle was a strong redoubt; without hesitation they charged, swarmed over it, and drove the enemy from the guns. Giving them no time either to rally or to spring their mines, the assailants drove them into the castle. In a moment the castle ditch was crossed, and the stormers planted their ladders on the wall. Many brave fellows were hurled down, but at length a lodgment was effected. Quitman meantime was doing the same on the E. side, having beside captured 2 batteries, and driven in a strong body of the enemy. Gen. Smith, with the rifles and the New York, South Carolina, and Pennsylvania volunteers, arrived just in time to share in the honors of the day. After a stout resistance the enemy were driven from their defences, and the American flag, as well as the standards of the regiments who participated in the capture, were floated from the ramparts. The cessation of the firing and the cheers of the victorious Americans, which were distinctly heard in the capital, gave notice to Santa Anna that Chapultepec had fallen. Crowds of fugitives falling back upon the city told the same tale, and showed that the war, so far as Mexico was concerned, was ended. The victory was gained with small numerical loss to the Americans. The Mexican loss was not ascertained, but must have been great. The victors pressed forward, and soon terminated the war by the occupation of the city of Mexico.

CHARA, an aquatic plant found in the great lakes, and in the large fresh-water lakes of New York, frequently growing with such luxuriance as to render the bottom green like a grassy meadow. It occurs in the fossil state, and is important to the geologist as characterizing groups of strata, as those of the fresh-water marl beds of the tertiary formation. The seed-vessel of these plants is very tough, and is covered by an integument consisting of 5 spiral valves. The stems are longitudinally

triated, and always turn in a contrary direction from the rings on the seed-vessel.

CHARADE, a species of enigma, which consists in dividing a word into syllables, each of which shall be a complete word, and vaguely defining, without naming, each of the parts and the whole word. For a charade to have literary merit, its members must have some relation to each other, and unite in an epigrammatic point. It was invented in the latter part of the last century, and has been most cultivated in Germany and France. The *Mercur de France*, prior to the revolution, contained stores of charades, enigmas, and logogrimphs.—ACTING CHARADES consist in obscurely indicating the signification of the words by pantomimes and dialogues.

CHARBAR, or CHOURAB BAY, one of the best harbors on the coast of Beloochistan, in the Indian ocean. Ras Charbar, the E. point of the bay, is in lat. 25° 16' N., long. 60° 35' E. On the E. side of its entrance is the town of Charbar, pop. 1,500, surrounded by a rampart of earth, and garrisoned by the imam of Muscat. North of this are the ruins of the Portuguese settlement of Teez, probably the Tiz of Edrisi and the Troesa of Nearchus.

CHARCOAL, the solid residue obtained by subjecting organic bodies to destructive distillation. Animal charcoal has been described under BONE BLACK. Wood charcoal is an impure form of carbon, containing the ashes or fixed incombustible portions of the wood from which it is prepared, and also some of its volatile ingredients. The principal object of its preparation is the greater calorific effect it affords than wood. Its properties vary greatly, according to the nature of the substance employed for its preparation and the manner in which this is conducted. Well charred hard wood, as birch, beech, or maple, retains the form of the wood, is of a glossy black color, burns without flame or smoke, rings when struck, and bears a considerable blow without breaking. It is still, however, brittle, separating square across the grain. It may be handled without soiling the fingers. Its weight when powdered is nearly double that of water, but in masses it was found by Hassenfratz to vary greatly with its porosity, and this seemed to be dependent on that of the wood. Birch gave sp. gr. 0.208; oak, 0.155; alder, 0.184; white beech, 0.183. Other authorities make these weights still higher. The composition of charcoal prepared from a variety of woods has been determined by M. Violette, who was employed by the French government to conduct a series of experiments in this branch of manufacture. The same method of expelling the volatile matters was adopted in each case, viz., by the action of highly heated steam, so that the differences of composition are evidently to be referred to the difference in the principles of the woods, and to the greater or less difficulty with which they are decomposed. The following table presents the proportions of the elements in 100 parts of charcoal:

Species of charcoal.	Carbon.	Hydrogen.	Oxygen, nitrogen, and loss.	Ash.
Furze.....	76.699	4.108	17.975	1.288
Ironwood.....	73.564	4.587	18.510	0.899
Cork.....	72.843	3.598	19.110	
Juniper.....	71.438	5.073	23.594	0.170
Wild pine tree.....	71.253	5.943	22.194	0.500
Hawthorn.....	70.798	4.443	23.419	1.245
Ash.....	70.885	4.589	24.374	0.699
Maple.....	70.069	4.613	24.999	0.495
Cherry tree.....	70.098	3.928	25.289	0.755
Lime.....	69.829	3.452	28.094	1.695
Yew.....	69.620	3.864	24.319	0.904
Sycamore.....	69.229	4.402	25.188	1.298
Chestnut tree, French.....	69.157	4.394	27.128	0.421
Willow.....	68.900	5.128	24.634	1.328
Poplar, trunk.....	68.741	4.866	25.540	0.858
Ebony.....	63.047	3.868	23.880	0.905
Oak.....	67.431	4.099	23.490	0.900
Elm.....	66.969	4.669	23.151	0.383
Plum tree.....	66.119	5.756	27.580	0.546
Pear tree.....	65.924	5.810	23.244	0.523
Hemp stalks.....	62.137	4.976	31.501	1.206
Wheat straw.....	61.090	4.806	24.758	0.750
Leaves, poplar.....	62.514	4.819	21.389	1.383

The proportion of ash is smaller than the known composition of the woods would lead us to expect. This differs very much in different woods, in some amounting to 5 or even 10 per cent. Winkler obtained in charcoals the following proportions of ash in 100 parts:

Lime.....	3.55	Pine.....	1.83
Maple.....	3.27	Poplar.....	1.80
Ash.....	3.37	Beech.....	1.25
Elm.....	2.17	Scotch fir.....	1.11
Willow.....	1.50	Birch.....	0.80
Fir.....	1.44	Oak.....	0.75

Charcoal absorbs water from the air, and in a few days gains from 10 to 20 per cent. in weight. Afterward it loses and gains within these limits as the air is dry or damp. The temperature at which the carbonization has been effected appears to have a remarkable influence upon the amount of water the coal can absorb; the lower this temperature the greater the absorption. Some of Violette's results, obtained by exposing charcoal of black alder, prepared at increasing temperatures, to air saturated with moisture, are given in the following table:

Temp. of carbonization, deg. Fahr.	Quantity of water absorbed by 100 oz. of charcoal.
302.....	20.983
323.....	18.150
374.....	11.626
410.....	9.743
446.....	8.900
464.....	6.665
468.....	7.408
518.....	6.205
554.....	6.920
590.....	7.309
626.....	4.504
662.....	5.594
610.....	4.704
1,373.....	4.676
2,012.....	4.444
2,573.....	2.394
2,783.....	2.204

The temperature of carbonization also influences that at which charcoal takes fire. Wood charred at 500° F. takes fire at 644°; and when charred at temperatures ranging from 554° to 662° it is found to ignite at 680° to 698°, and at increased temperatures proportionally higher.



The experiments of M. Violette also developed the following results: For the manufacture of the best gunpowder the temperature of carbonization must be at least  $536^{\circ}$  for the charcoal to be sufficiently friable. At  $663^{\circ}$  it becomes black, and at  $2,000^{\circ}$  and upward, very compact and but slightly inflammable. At the melting point of platinum it is somewhat like anthracite, hard to break and to burn, and gives a metallic sound when struck. Only 15 per cent. is obtained at so high a temperature; at  $536^{\circ}$ , 40 per cent. By slow charring more coal is obtained than when the process is rapidly conducted. The coal obtained at  $663^{\circ}$ , suited for powder for cannon, contains 77 per cent. of carbon, 20 of water, and 3 of hydrogen. Steam admitted into the retorts which contain the wood, aids its conversion into coal by conveying away the volatile products; thus, steam at  $790^{\circ}$  produced the effect of a temperature exceeding  $2,000^{\circ}$  without it.—When charcoal is saturated with moisture and rapidly heated, this is decomposed, and carbonic acid, carbonic oxide, and carburetted hydrogen are evolved, commonly mixed with nitrogen. In contact with water, it absorbs it by capillarity and becomes so dense as to sink. It thus appears that the quantity of charcoal cannot be estimated with precision by weight. Nor is it much more accurate to calculate this by measure; for when in large quantities it would be by mere accident if 2 measurements gave the same result.—Charcoal possesses an extraordinary capacity of absorbing gases, some of them in very large quantity. Of ammoniacal gas it was found by Sansure to take up 90 times its bulk; of hydrochloric acid gas, 85 times; of carbonic acid, 35 times; of nitrogen,  $7\frac{1}{2}$ ; and of hydrogen, 14. When filled with one gas and exposed to another, a portion of the former is evolved and its place supplied with a portion of the latter. This absorption and condensation of gas within its pores is accompanied with an increase of temperature, which is sometimes sufficient to cause spontaneous combustion. This is particularly the case with freshly charred coal from the pits, and it is probable that many of the instances, so frequent, of the heaps taking fire after the charcoal is drawn out, or after being placed in the wagons, are owing to this property. Coal which is very black, without having been charred too much, and fine, is most likely thus to take fire. Charcoal also absorbs colors, and abstracts the smell and taste of organic substances in solution; hence its use for clarifying liquors.—Some interesting properties of charcoal have recently been developed by M. Moride. He found that, while incandescent or just extinguished with water, if plunged into an acid solution of sulphate of copper, it caused the metal to be precipitated upon itself. Silver salts in solution are affected like those of copper, and the deposition of silver, sometimes crystallized, presents, as does that of copper also, the most beautiful appearance. Zinc, iron, platinum, lead, and mercury have been precip-

itated in the same manner, but they redissolve in acid liquors; silver does not, and copper only after 24 hours. Charcoal is unaffected by high temperatures when protected from the air, and also by most powerful chemical agents, as has already been stated of CARBON.—As before observed, charcoal is prepared principally for the sake of the greater heating power it possesses than the same weight of wood. In this condensed form a larger amount of fuel can be transported at the same cost, and a greater condensation of heat is obtained in its combustion in the same space which is filled with the wood; hence its advantageous application to the smelting of ores, &c. The subject of the greater calorific effect of the denser combustibles is treated in the article FUEL. In charring wood, though the object is to increase this effect by the expulsion of the volatile ingredients, the process must not be carried so far as to weaken the texture of the product, causing the coal to break up in handling. The denser woods produce the most compact charcoal, and this evolves more heat than an equal bulk of the coal of the lighter woods. It moreover possesses in a higher degree the tenacity so essential, which prevents its readily crumbling. In the process of charring it is found that after being subjected to the heat for 5 hours, the wood passes through a certain stage, when it presents a reddish brown appearance. In this condition, according to the experiments of Sauvage, it contains a larger proportion of combustible matter to the cubic foot than at any time before or afterward, though only from 30 to 50 per cent. of the volatile matters are expelled. This product, called *charbon roux*, or red charcoal, is especially prepared for the large iron establishments in the department of Ardennes, in France, the escape heat of the furnaces being employed to heat the cast-iron cylinders in which the wood is charred. However prepared, there is a want of uniformity in the product; still there may be economy in stopping the process at this stage.—The most ancient method of making charcoal was to throw the wood into holes dug in the ground, and keep it partially covered with earth while consuming. The common expression "charring in pits" has reference to this mode. A method is practised in Austria, said to be the same as was used by the Romans, which is recommended for pine and well-seasoned hard wood, and for localities where the ordinary materials for covering are scarce. It is called charring in mounds. Around 3 sides of an area of 40 or 50 feet in length, and 9 in breadth, prepared by levelling or sloping uniformly, and rendering the ground hard by pounding, posts are set up 4 feet apart on the 2 sides, ranging from 3 feet at one end to 6 feet at the other above the surface. To these is fastened with wooden pins the lining of alabs or split wood, the end where the short posts are being left open. The width in the clear should be double the length of the wood, and space enough beside on each side for packing an inner lining of earth between the ends

of the cord wood and the lining, which is to prevent this from taking fire. The lining at the back end of the enclosure is to be similarly protected. The wood is laid horizontally in 2 lengths across the enclosure, beginning at the upper end, and piling all along to within 8 inches of the top of the lining. It is then covered as in other methods; fire is set to the lower end, which is partially covered, and vent holes are opened near the upper end; other holes may be opened, as the process goes on, through the sides. In 24 hours, if the operation is well conducted, charcoal may be drawn from the lower end, and its removal may be continued progressively to the extreme end. In the ordinary method, the wood, which, to produce the best quality or largest quantity of charcoal, and in the shortest time, should be seasoned, is ranged in stacks, sometimes in horizontal layers, but more frequently in ranges of logs and sticks placed on end, and in tiers one above another around a central aperture, which is extended to the top of the heap. This aperture is for a temporary chimney, and also for introducing the fire for igniting the heap. For the latter purpose, a horizontal channel is sometimes left in the base, extending to the centre. The piles of wood are built up in a conical or hemispherical form, and are closely packed with small wood to fill the apertures. They are of any convenient size, from 10 to 30 or 40 feet in diameter, and in height not exceeding the length of 8 sticks, or 12 feet. The outer surface, when well filled in with chips and sticks, is covered with small branches, twigs, leaves, straw, or moss, upon which sods are laid together with the fine charcoal waste of previous coalings, called *braise*. This is moistened and mixed with as much earth as may be required. When wet, it makes the best of all covers. Around the bottom of the heap apertures are left open for the admission of air and escape of the volatile products; as the process goes on, these are closed, and new ones are opened near the top and in other places, according as it is found desirable to check the operation in some parts and hasten it in others. The heap is fired in the centre at the bottom, and the fire gradually spreads in all directions, but especially toward the apertures by which the air is admitted. Insufficient supply of air prevents thorough consumption of the fuel, but a part of this must be sacrificed to generate the necessary heat for expelling the volatile matters from the rest. The art of the collier consists in burning up as little wood as possible to produce the largest quantity of charcoal of nearly uniform quality. The first matters which escape are the aqueous vapors. They condense in the cover, making it moist, and also pass off in a yellowish smoke. After these have disappeared the smoke becomes lighter colored, and then black and dense, emitting the odor of pyroligneous acid, which grows stronger toward the end of the process. The carbonization is first completed at the centre and top of

the heap, and gradually extends down its sides. In a heap half charred the finished portion is seen in the form of a reversed cone, the apex of which is at the bottom of the central axis of the heap. As the line between the finished and unfinished portions moves downward, the apertures for the admission of air should be kept in advance of it, the upper rows of holes being closed as the new ones are opened. The completion of each portion is indicated by the vapors changing from their black and dense appearance to a transparent light bluish color. The tarry matters, which collect mostly toward the close of the operation, run out in channels made beneath and around the heap. When the process is completed to the base of the heap all around, the openings are all closed, and the heap is left for one or two days, when it is partially uncovered, and the coal is drawn out, and spread around in thin layers. This is best done at night, when if any fire is still in the coal, it is quickly seen in the darkness. Whenever detected, it is quenched with water or wet sand or braise. The success of the operation depends wholly upon the experience, skill, and watchfulness of the collier. He must be always on his guard to prevent unequal falling in of the surface by too long continued action of the fire in any place, to prevent explosions, which sometimes occur from bad ventilation of the heaps, and to shield the heaps from the winds and rains. The wind blowing against them causes too great combustion on their sides, which is remedied only by closing the apertures and increasing the thickness and moisture of the covering. The time required for the operation varies with the size of the heap and the state of the weather. Small heaps may be charred in a week; large ones may require 8 weeks. A common yield is about 100 bushels to 8 cords of wood. Forty or even 50 bushels per cord are sometimes obtained. The condition of the wood, and the rapidity with which the process is conducted, are important considerations as affecting the yield. The more water present, the more heat is abstracted or fuel consumed to expel it. The aqueous vapor, moreover, as it passes over the coal already charred and highly heated, attacks this, converting a portion of it into carburetted hydrogen and carbonic oxide, which escape; by long continued charring at low temperature, this reaction and loss cannot occur. The more complete the seasoning, the better, then, the results. The advantage gained in this process by removing the bark as soon as the tree is felled, appears to be little appreciated. According to the experiments of Af Uhr, made in the districts where wood is coaled by the process above described in enclosed mounds, the loss of weight in pine wood deprived of its bark, and under cover in an open shed for 1 month, was .8458 of its original weight, while similar wood not barked, exposed with it, lost less than 1 per cent. in 4 months. The loss by rapid charring is shown in the following table, which presents

in the first 2 columns the weights of charcoal obtained from 100 parts of wood dried in air by Karsten; in the 3d, those obtained by Stolze from wood thoroughly dried at a temperature of 212°; and in the 4th, those of Winkler from wood dried in a hot room:

Species of Wood.	Product by quick charring.	Product by slow charring.		
	Karsten.	Karsten.	Stolze.	Winkler.
Young oak.....	16.54	35.60		
Old do.....	15.91	25.71	26.1	22.8
Young red beech.....	14.87	35.87	24.6	17.8
Old do.....	14.15	26.15		
Young white beech.....	13.19	35.22	23.8	..
Old do.....	12.65	26.45		
Young alder.....	14.45	35.65	..	..
Old do.....	15.30	25.65	..	..
Young birch.....	13.05	35.05	24.4	17.6
Poplar.....			22.8	17.7
Old birch.....	12.30	24.70	24.4	17.6
Birch 100 years old, well preserved.....	12.15	25.10	..	..
Young deal ( <i>pinus pi-</i> <i>cea</i> ).....	14.25	25.25	28.4	20.6
Old do.....	14.05	25.00		
Young fir ( <i>pinus abies</i> ).....	16.22	37.72	21.5	20.1
Old do.....	13.35	24.75		
Young pine ( <i>pinus syl-</i> <i>vestris</i> ).....	15.52	26.07	23.7	..
Old do.....	13.75	25.95	22.3	16.2
Lime.....	13.30	24.60	22.1	19.4
Ash.....	..	..	22.2	15.0
Willow.....	..	..	..	..
Eye straw.....	13.40	24.60	..	..
Fern straw.....	17.00	27.95	..	..
Cane Stems.....	14.65	26.45	..	..

Manufacturers, who distil wood in close iron vessels for the sake of all the products, obtain in 100 parts by weight:

Charcoal.....	28 to 30
Acid and water.....	23 to 30
Tar.....	7 to 10
Gaseous compounds, and aqueous vapor.	87 to 90

They consume beside about 12½ parts of fuel outside of the retorts to produce the heat required. From these results, and from theoretical calculations as to the quantity of fuel necessary to produce the heat required to unite the oxygen and hydrogen in air-dried wood in the form of water, and to expel this by heating the charcoal to incandescence, it is apparent that no greater yield of carbon can be expected than that of 25 to 27 per cent. of the weight of the original material.—Other methods of producing charcoal require notice, as that in large brick ovens or kilns, and that in close retorts. The ovens for this purpose are constructed of various forms and sizes. A description, accompanied with a drawing, is given in the "American Journal of Science," vol. xvii. (1880), of one constructed by Mr. Isaac Doolittle, of Bennington, Vt., in 1829. It was 80 feet in diameter, 9 feet high, and of the capacity of 50 cords of wood. The product, he states, was uniformly from 55 to 60 bushels of coal to the cord. Rectangular kilns of this sort, holding 80 or 40 cords each, were not long after introduced at the iron works in the vicinity of Baltimore, upon the shores of the Chesapeake, and have since continued in successful operation. Pine wood is brought to them in vessels from the

forests around the bay. In such situations they are worked to great advantage; but permanent structures of this nature are not so well adapted to localities where the cost of transportation is likely to soon become a heavy item, as the wood in the vicinity of the kilns is cut away. It is still a question whether the charcoal thus made is so dense and possesses so much heating power as that prepared in the woods. In Berkshire, Massachusetts, where kilns of a capacity of 60 cords each have been in use, the product is estimated at 50 bushels to the cord; and this is sometimes exceeded. Three weeks is the time allowed from the filling to the emptying of a kiln. The cost of the process, including the filling, coaling, and discharging, is \$1 per 100 bushels. Coaling in the woods by large contracts costs, when the wood is delivered to the pits, \$2½ the 100 bushels.—Coaling in retorts is carried on upon a comparatively small scale. The retorts are heated by an external fire, and the volatile products are conveyed away in pipes and condensed to obtain the pyroligneous acid, wood naphtha, &c. Though the amount of charcoal left in the retorts is larger than the product of the same quantity of wood charred by the other methods, the greater expense of conducting the operation prevents its being adopted where charcoal is the principal object. The demand for the volatile products is always uncertain, and in this country has never been sufficient to justify their preparation upon a large scale. If it were otherwise, these products could be saved, as they have been in some instances, from the large kilns.—Peat charcoal is prepared very much in the same manner as wood charcoal, either in the covered heap of circular or rectangular form or in ovens. As the blocks pack closely, air channels of the size of a block of peat must be frequently left radiating from the centre of the heap. The peat is less combustible than wood, and the operation therefore does not require such close attention; but if the peat is not well dried the process will go on very irregularly, or the fire may go out. The dimensions of a heap may be 2,500 cubic feet, or about 18½ tons of peat. The time of coaling it till it is cooled and ready for drawing out is from 12 to 14 days. The product is about 700 cubic feet of charcoal, weighing about 3 tons 8 cwt. The cost is estimated at about \$3 88 per ton, the raw peat being rated at 71 cents per ton. Such is the experience at the royal iron works of Welterhammer in Bavaria. Various methods of carbonizing peat are employed. Steam heated to 450° F. has been applied in one process; and in another the torrefied gases from the furnaces of the Irish peat company, in which the peat is subjected to dry distillation, are conveyed into a second furnace filled with peat, which is thus charred. The volatile products of distillation are driven into other apparatus, in which they are condensed. From well-dried peat charred in a small way 40 per cent. of its weight has been obtained in good charcoal; but if 85 per cent. of weight or 49 of bulk is obtained, it is a large

product. As the charcoal contains all the ash, which is a large ingredient in most varieties of peat, its properties are thereby much impaired; it is moreover so disposed to crumble, that it is only fit for use as a fuel on the spot where it is prepared. Still its heating power causes it to be ranked among the best kinds of fuel; for blacksmiths' use it is said to be preferable to wood charcoal. It is largely consumed in several countries in Europe for metallurgical purposes, working well in the blast furnace, both as respects the quantity and the quality of pig iron produced. It is also employed in the reheating and other furnaces. In France, peat has been charred together with fine bituminous coal, and a product of part charcoal and part coke is obtained which is described as a compact and enacious material, admirably adapted for the forging of steel and other similar operations. Peat charcoal, when thoroughly dry, possesses leodorizing properties in a remarkable degree. The most noxious effluvia are entirely deprived of odor by passing them through a thin layer of it.—Beside the use of charcoal as fuel, it is applied to many other purposes. It is an essential ingredient in the composition of gunpowder; that of the willow or alder being preferred for this purpose. When finely ground, it is used for polishing hard substances, for lining crucibles, for finishing the fine smooth surface of the moulds of nice castings, for making crayons, and by the ancients it was used for making ink, which has never been surpassed for durability. This property of withstanding the causes of change and decomposition possessed so eminently by charcoal admirably fits it for many uses requiring incorruptibility. Stakes charred at the end make most durable and convenient landmarks. Some have been dug up in the Thames unchanged, which there is good reason to believe are the same which Tacitus describes as having been placed there by the ancient Britons to oppose the passage of Julius Cæsar and his army. The antiseptic properties of charcoal make it a valuable material for preserving meats on long voyages, by burying them in it in close vessels. In the process of cementation coarsely pulverized charcoal is used to impart its carbon to the bars of iron desired to be converted into steel. In medicine it is used as an antiseptic and absorbent, being given internally in a powdered state, and applied externally as a dressing to wounds and ulcers. Charcoal made from cocoanut shell and from bread is said to constitute the best dentifrice known. When desired to be free from foreign matters, as for fine pigments, charcoal may be purified by digesting it in dilute nitric or hydrochloric acid, and then washing thoroughly with hot water.

CHARD, a municipal town, borough, and parish of Somersetshire, England, 13 m. from Taunton, 140 m. from London, and 28½ m. from Exeter; pop. of the borough in 1851, 291, and of the Chard poor-law union, 26,085. The town is well built, on elevated ground, and contains a handsome parish church, and places

of worship for Baptists, Independents, and Wesleyan Methodists, an ancient town hall, formerly a chapel, an endowed grammar school, a national school, a large market place, a workhouse, a hospital founded in 1662 and rebuilt in 1841, and lace and woollen manufactories. There are also 2 iron founderies, and extensive warehouses on the wharf of the town, the latter being connected by a canal with Bridgewater. The troops of Charles I. suffered a defeat here under Col. Penruddock during the civil wars.

CHARDAK, the Anava of Herodotus, supposed to be the salt lake Ascania mentioned by Arrian, a lake of Anatolia, 14 m. N. W. of the lake of Buldur, surrounded by high hills with steep and lofty cliffs, yielding much salt. Length about 20 m.; breadth from 2 to 4 m. At its W. end is the village of Chardak.

CHARDIN, JEAN, a French merchant, born in Paris, Nov. 25, 1643, died in London, Jan. 15, 1718, went to the East to trade in jewellery, became the favorite purveyor of the shah of Persia, and eventually produced an admirable book of his travels and experiences in that country, which has been found true by subsequent travellers, and translated into many foreign languages. The London edition of 1686 contains only the description of his journey to Ispahan. Complete editions of the work, which is entitled *Journal du voyage du chevalier Chardin en Perse et aux Indes orientales, par la mer Noire et par la Colchide*, appeared in 1711 and 1785, and were followed by the most highly valued edition, brought out in Paris in 1811 by Langles, the famous orientalist, who enriched it with a map, and with an abridged history of Persia. A Protestant by birth, Chardin was compelled on his return from the East in 1681 to seek refuge in England, where he was knighted and appointed agent of the East India company in Holland.

CHARENTE, an inland department of western France, formed principally out of the ancient province of Angoumois, deriving its name from the river Charente, by which it is drained; pop. in 1856, 378,721; chief town, Angoulême. The soil is generally far from being fertile. There are many shallow ponds, called *étangs*, some of them of considerable extent. Numerous caverns, some of great depth, are found, among which that of Rancogne, near La Rochefoucauld, is particularly remarkable. It seems as if earthquakes had been once frequent here; 2 rivers, the Tardouère and the Bandiat, the course of which is toward the Charente, disappear repeatedly, and finally are entirely lost before reaching that river. There are mines of iron, antimony, and lead; quarries of free and rag stone. The corn crop is poor, and scarcely sufficient for home consumption; but the vineyards, covering nearly 50,000 acres, yield a considerable surplus. Their produce is mostly converted into brandy, the superiority of that made at Cognac being universally acknowledged. Hemp, flax, and potatoes are extensively cultivated.

Truffles are abundant, as well as chestnuts. Cattle, mules, and asses are numerous; horses comparatively scarce. Game, fish, poultry, and bees are found in abundance. Beside large iron works connected with the mines, there are paper mills, especially at Angoulême, distilleries, manufactories of earthenware, &c. The export trade is mostly in brandy, which is forwarded to nearly all parts of the world. The annual average value of raw material employed in manufacturing is about \$4,000,000, and of manufactured goods, \$5,500,000. The number of hands employed is about 7,500; the wages are 87½ cents per day for men, 19 cents for women, and 19 cents for children. Nearly 900 fairs are annually held in the Charente. Its annual contributions to the French revenue amount to about \$1,900,000. Francis I., Marguerite de Valois, La Rochefoucauld, and Ravallac, the murderer of Henry IV., were born in this department.

**CHARENTE-INFÉRIEURE**, a maritime department of western France, on the Atlantic coast, deriving, like the foregoing, its name from the river by which it is intersected; pop. in 1856, 474,838; chief town, La Rochelle. Beside the Charente, it is watered on the N. frontier by the Sèvre-Niortaise, and on the S. by the Gironde, which offer great facilities to exterior commerce. There are several other navigable streams, and a canal from La Rochelle to Niort. The climate is agreeable; the surface is flat, and partly covered, especially in the neighborhood of the sea, with marshes yielding large quantities of salt. There are quarries of freestone; peat, and fine sand for the manufacture of glass, are also found. The soil is mostly calcareous or sandy, but nevertheless yields large crops of grain and wine. Large quantities of brandy are exported. Cattle, horses, and sheep are raised in great numbers. Oysters are sent to Paris and London. Sardines form an important branch of trade, and vessels are fitted out for the cod fishery. La Rochelle, Rochefort, and the other ports have a considerable share of the colonial and coasting trade of France. Salt is extensively manufactured along the coast. There are manufactories of coarse woollen stuffs, soap, fine earthenware, and glass, with tanneries and sugar refineries. Three islands, Oléron, Ré, and Aix, the first two somewhat considerable in extent, lie near the coast of this department, to which they belong. The average annual value of raw material employed in manufacturing is about \$3,200,000, and of manufactured goods \$4,600,000. The number of hands employed is about 17,000. The wages are 43 cts. per day for men, 20 cts. for women, and 14 cts. for children. The contributions of Charente-Inférieure to the French revenue amount annually to about \$2,800,000. Among the eminent persons born in this department are Baudin the navigator, Réaumur the naturalist, Cabanis the physician, and Regnault de St. Jean d'Angély the statesman.

**CHARENTON-LE-PONT**, a town of France,

department of Seine, on the left bank of the Marne, near its confluence with the Seine, 4 m. S. E. of Paris; pop. 2,219. It derives its surname from the fine bridge which, crossing the Marne, unites the town with the village of Charenton St. Maurice. This bridge has been always considered as of great importance for the defence of Paris, and is now protected by 2 forts which guard the passage of the Seine.

**CHARENTON ST. MAURICE** (the name changed to St. Maurice since 1849), a village of France, in the vicinity of Paris, on the right bank of the Marne; pop. 2,626. It contains an excellent lunatic asylum, founded in 1741, and capable of accommodating 500 patients. The Protestants formerly had here a large church, in which several synods were held; but it was demolished in 1685, after the revocation of the edict of Nantes.

**CHARES**. I. An Athenian general, through whose incapacity the Thracian colony was lost to Athens during the social war (358 to 356 B. C.), and who exposed his country to the designs of Persia, by entering for mercenary purposes the service of Artabazus, the revolted satrap of western Asia. Although recalled in disgrace, he was sent in 349 to the aid of Olynthus, and again he returned without having achieved anything. In 340 he commanded the army sent to Byzantium against Philip, again gave overwhelming evidence of his incompetency, was replaced by Phocion, but, strange to say, once more invested with the supreme command. In 338 he took part in the battle of Chæronea, the fatal issue of which seems to have been mainly due to his gross ignorance. The repeated appointment of a man of his calibre, who, as Timotheus tells us, was only fit to be a porter, can only be accounted for by the degeneracy of those then in power at Athens, with whom the athletic figure, the profligacy, flattery, and unscrupulous recklessness of Chares carried more influence than the solid merits of many well-tried, brave, and competent officers. II. A Grecian statuary in bronze, the sculptor of the celebrated statue known as the colossus of Rhodes, was a native of Lindus, the favorite pupil of Lysippus, and flourished toward the close of the 8d century B. C.

**CHARGE**, in military tactics, the rapid advance of infantry or cavalry against an opposing force, with the object of breaking and scattering the enemy's ranks by the momentum of the attack. Charges of infantry are made either in order of battle, in column of attack, or in close column in mass. In order of battle, the troops receiving the charge fire at the moment preceding the shock, with the view of checking the advancing force. The troops charging move forward, and, at 100 to 120 paces, deliver their fire. Without stopping to reload, they continue to advance at quick step ½ of the distance, when, quickening into charging step, braced shoulder to shoulder to form a solid wall, and with bayonets at charge, they increase their speed into a running step, and

with shouts precipitate themselves upon the enemy. If the charge fails to break the opposing line, the attacking force retires in as good order as may be, to re-form and repeat it, or to await another opportunity. If successful, and the enemy break before it, the attacking force must re-form, reload, fire on the fugitives, and continue thus to gain ground until the cavalry come up. An indiscreet pursuit might bring the pursuers under a flank fire or masked batteries, or within reach of the enemy's cavalry. (For charge in column, see ATTACK.) Infantry form square to receive the charge of cavalry. Cavalry charge in murraille, echelon, or column. Echelon has the advantage of exposing the troops less. Charge in column is employed against infantry deployed in masses. In such case, the cavalry form in columns by squadrons, and advance, first at march, then at trot, increasing in speed to the wild gallop with which they hurl themselves on the foe. The squadron at the head of the column receives the fire, and, if it can penetrate the square, the succeeding squadrons complete the defeat. If, on the contrary, it fails to make impression on the wall of bayonets, it breaks to the right and left to mask the other squadrons, who ought to charge ere the infantry can reload. A skillful commander will endeavor to draw the enemy's fire on skirmishers, or on a curtain of light infantry, and seize the moment after the pieces are discharged to urge his charge. On the other hand, the officer in command of the infantry must be on his guard against such feints. Coolness, steadiness, and the most perfect discipline are the qualities which enable infantry to sustain cavalry charges. When the infantry fire is reserved and delivered with precision at the breasts of the attacking squadron, the first rank of men and horse are usually overthrown, and form a rampart which embarrasses the attack of the squadrons following. The passage of defiles in retreat should be always secured by a charge of cavalry. In charging artillery, it is necessary first to defeat the troops that support it. When pieces are isolated, cavalry form a crescent having the hollow toward the fire, and, advancing the points or horns of the figure till they arrive beyond the side range, they dash on the battery and sabre the gunners. Troopers usually cheer when they attack, but sometimes charges have been made in silence. In the days of chivalry the charge consisted of individual tilts of knights and men-at-arms. Later, the cavalry on both sides approached to 80 paces, where they exchanged pistol fire, and the party which suffered most retired. Yet later, they advanced to 80 paces, fired, and took to their sabres. Frederic the Great was the first who ordered his men to charge sabre in hand, commencing the gallop at 50 paces. Single charges have often decided battles. At Eylau, the whole French cavalry under the duke of Berg charged at once on the enemy, with a momentum that overthrew the Russian horse and penetrated two lines of in-

fantry. During the French retreat in Spain, at Medellin, on the Guadiana, Gen. Latour ordered a charge on the pursuing Spaniards with such effect that he put 15,000 of them *hors du combat*, and took 6,000 prisoners and 40 guns. A main feature of Napoleon's tactics was a grand charge of the cuirassiers and heavy cavalry of the reserve. It failed him, however, at Waterloo. The history of warfare abounds in records of brilliant charges, few pitched battles being fought without one or more worthy of commemoration. The charge of the British light cavalry at Balaklava, against a force which it was madness to encounter, is the most recent instance. (See BALAKLAVA, and CAVALRY.)

CHARGE D'AFFAIRES, the title of the 4th rank of diplomatic agents. They are accredited not to the sovereign but to the department of foreign affairs, and are appointed by and responsible to the minister of state of their own country. They were not recognized in European diplomacy till near the 18th century. By the congress of Vienna in 1815, they were made the 8d order of diplomatists, which was changed to the 4th by the congress of Aix la Chapelle in 1818. The title is given to the agent whom an ambassador or envoy, by virtue of authority from his prince or state, appoints to conduct in his absence the affairs of his mission.

CHARIKAR, a town of Afghanistan, pop. 5,000, containing a castle, the residence of a local chief. It has an active commerce in coarse cotton goods, and a carrying trade of some importance across the Hindoo Koosh. In 1841 it was the seat of a British garrison, afterward almost wholly destroyed in its retreat to Cabool.

CHARIOT, among ancient nations, a two-wheeled carriage, open above and behind and closed in front, and used in war, in public games, and for the purposes of common life. The axle of the Greek chariot was usually made of oak, ash, or elm, though Homer describes the chariots of Juno and Neptune as having metallic axles. The wheels were about 4 feet in diameter, and each consisted of a nave bound with an iron ring, of 10 spokes, a felly of elastic wood, and an iron tire. They were fastened to the axle by pins, and the overthrow of Ctenomans in his contest with Pelops was caused by the treachery of his charioteer, who inserted a linchpin of wax. The Lydians and Romans sometimes attached 2 or 3 poles and spans of horses to their chariots, but the Greeks rarely added a third horse. From the earliest historic periods chariots were used in war both by the Asiatic and the classic nations. The famous scythe chariots, whose spokes were armed with long hooks and sickles, were chiefly used by the ancient Persians, Britons, and Gauls. The warriors of highest rank among the Greeks, Romans, and Jews, either fought from their chariots, or sometimes in close combat, dismounted. In the Roman games chariots were often decorated with sculptures and enriched with gold and ivory. The triumphal chariot,

which was usually made of ivory, adorned with the utmost skill, and drawn by 4 white horses, was one of the chief ornaments in the celebration of a victory. The chariot was an attribute of the mythologic divinities, especially of Victory, Night, Apollo, and Diana.

**CHARISTIA** (Gr. *χαριστια*, to pardon), annual Roman festivals held on Feb. 19, at which none but relatives and members of the same family were invited, to adjust all matters of difference among themselves.

**CHARISTOARIES**, the name applied in Greek ecclesiastical history to functionaries who possessed uncontrolled power over the revenues of hospitals and monasteries. The practice originated in the iconoclastic war in the 8th century, and resulted from hostility to monasticism. In after times the custom was continued without the spirit which originated it, and monasteries were often given to persons of wealth and rank in order to secure their patronage and influence. So universal did the custom become, that at length all the monasteries had passed by donation to charistocaries, who frequently lost sight of the beneficent purpose for which they held the trust.

**CHARITON**, or **GRAND CHARITON** river, rises in Iowa, and flows S. E. through Appanoose co. to the Missouri boundary. Thence it follows a S. course to the Missouri river, which it joins near the S. extremity of Chariton co., Mo. It is about 250 m. long, and is navigable for 50 m. The E. Chariton and Middle fork are its principal branches.

**CHARITON**, a county in the N. central part of Mo., derives its name from the Chariton river, by which it is intersected. It is bounded W. by Grand river, and S. W. by the Missouri. It is also drained by Yellow and Wolf creeks, which furnish water power for several mills. The soil is fertile and adapted to pasturage. The surface is gently undulating and covered with forests and prairies. Stone coal and limestone are found in large quantities. In 1850 this county produced 2,667,908 lbs. of tobacco, 877,397 bushels of corn, 14,592 of wheat, and 34,170 of oats. It contained 12 churches and 1 newspaper establishment. There were 1,000 pupils attending public schools, and 500 attending academies or other schools. Pop. in 1856, 9,211, of whom 2,198 were slaves. Capital, Kaytesville.

**CHARITY, BROTHERS OF.** I. An order of religious hospitalers founded at the end of the 18th century, and since denominated Billotins. II. A religious order in the Roman Catholic church, established at Granada by St. John of God in 1540. He hired a house to harbor poor sick persons, in which he provided for them and served them himself with great devotion. This pious work of charity attracted the attention of the whole city, and gradually persons of the same disposition as John came to aid him in his undertaking. His institution was approved by the archbishop, but the members of it had neither rule nor habit, and it did not receive the approval of the pope until after

the death of its founder. In 1573 Pius V. gave it the rule and habit of St. Augustine. Maria de' Medici introduced the order into France in 1601. Henry IV. granted it letters patent in 1603, and it soon numbered several houses in that kingdom. The hospital of charity in Paris, and that of Charenton, were the most important. The brothers of charity not only nursed the sick, but were frequently skilful surgeons. In Spain these religious were called brothers of hospitality, and in Italy *fate ben fratelli*. In different parts of Europe they have borne different names. Since the revolution, France has had few houses of the order.

**CHARITY, SISTERS OF**, a religious congregation founded by St. Vincent de Paul in the vicinity of Paris, about the year 1633, with the co-operation of Madame Le Gras, a pious and charitable French lady of conspicuous rank. The object of this institution was the care of the poor, especially of the sick, and the education of children; and its members are everywhere the servants of the poor, which name was conferred on them by the archbishop of Paris when he gave them his formal approbation in 1655. Prisons, free schools, hospitals, and alms-houses were at once placed under their direction in all parts of France. The congregation was soon invited to take charge of similar institutions in other countries, and the sisters of charity are now to be found in almost every civilized land. Louis XIV. granted letters patent to this institution in 1657, and they were finally confirmed by the legate of the pope in 1660. The charity and devotion of these women had made them so useful to all classes, that even the revolution spared them. They continued their work of beneficence secretly but without restraint. One of the first acts of the new government was to open to them a field of usefulness, and Napoleon placed them under the protection of his mother. They make simple vows, which are renewed every year. In the year 1848 the number of establishments of the sisters of charity throughout the world, the United States not included, was over 600, under the charge of about 12,000 sisters. The American branch of this congregation was established at Emmetsburg, Md., in 1809, by Mrs. Eliza Seton, their first mother superior. In 1852 there were 28 houses under the charge of the sisters in different parts of the United States, and the number is constantly increasing. In the diocese of New York, there are about 250 sisters of charity, having under their care, beside the parish schools in the city of New York, a hospital, a male and female asylum, and an industrial school. Their mother house is at Fonthill, on the Hudson river, near Yonkers.

**CHARIVARI** (Fr. *charivari*; Ger. *Katzen-Musik*; Sp. *conceznada*; It. *scampanata*), a mock serenade, which was performed in the middle ages whenever an old man married a young girl, or when a man married for the 2d or 3d time, or generally when ill-assorted marriages took place. The neighbors assembled

on such occasions during the night before the house of the wedded pair, with all sorts of pans and kettles, and iron and copper utensils (*chalybaria*), producing every variety of discordant noises, and accompanying them with derisive shouts and obscene songs. The charivariists usually continued their uproar until their wrath was soothed by drink or food. The council of Trent attempted to put a stop to this nuisance, which frequently occasioned disturbances. In some French towns, as for instance in Lyons, the practice was maintained as late as the 16th century. In Brittany the term charivari was also applied to aggravated collisions between husband and wife. Xantippe throwing a jug of water at the head of Socrates is the most classic type of this sort. In the game of ombre the turn of 4 queens is called charivari. The Germans possess a work on the origin of *Katzenmusik* by Phillip, which appeared at Freiburg in 1849. French literature boasts of a still more comprehensive work on the same subject: *Histoire, morale, civile, politique, et littéraire, du charivari, depuis son origine vers le 4me siècle*, by Dr Calybariat de St. Flour, with a supplement by Eldi Christophe Bassinet, which brings the historical record of charivaris down to 1838.

**CHARIZI, JUDAH**, one of the most remarkable Hebrew scholars and poets of his day, born at Xerea, in Spain, time unknown, died before 1235. Little is known of his life. He received his education at one of the rabbinical schools for which Spain was so celebrated in the middle ages. Although he was one of the restorers of Hebrew literature, his writings were strongly tinged with the genius of Arabic poetry, which he had studied with great care. He translated the philosophical works of Maimonides and the poems of Hariri from the Arabic into Hebrew, and composed a Hebrew imitation of the latter, entitled *Tahkemoni*, which is one of the curiosities of literature.

**CHARLEMAGNE, EMPEROR OF THE WEST.** See **CHARLES I. (GERMANY).**

**CHARLEMAGNE, JEAN ARMAND**, a Frenchman, born Nov. 30, 1759, died in Paris, March 3, 1838, who left the study of theology to become successively attorney's clerk, soldier, writer on agricultural subjects and political economy, and finally actor and dramatist. The most popular of his plays was one entitled *Le souper des Jacobins*. He was also the author of several novels; that entitled *Timon Alceste, ou le misanthrope moderne*, was commonly attributed to him, but was written by another person of the name of Charlenagagne.

**CHARLEMONT.** See **GIVET.**

**CHARLEROI, or CHARLEBOY**, a Belgian arrondissement, in the province of Hainaut; pop. increased from 181,025 in 1846 to 170,324 in 1857. Charleroi, or Charleroy, the fortified chief town of the arrondissement, is situated on the Sambre, on the railroad from Brussels to Namur, 33 m. from the former city, and since 1856 con-

nected with Paris by the Northern railroad *via* Maubeuge and St. Quentin. There is also a railroad from Louvain to Charleroi; the Sambre and Meuse railroad branches south of Charleroi; and *via* Erquelines the town connects with the Paris and Cologne railroad. Thus accessible from all parts, the town is in a very flourishing condition. The glass works here are the most extensive in Belgium. The annual yield of the collieries in the vicinity, which give employment to 3,345 miners and 118 steam engines, is estimated at 3,000,000 cwt. There are about 6,000 nail-makers in the adjoining country, and 70 high furnaces, 50 iron foundries, and 90 coal pits, almost all of which have sprung into existence within the last 30 years. There are also tanneries, dyeing establishments, rope-walks, salt and sugar refineries, and factories for spinning wool. The fortress was commenced by Charles II. of Spain, in 1666, and completed by Vauban for Louis XIV. It is a hexagon, with 5 counterscarps, 2 horn-works, and 5 ravelins. It has changed masters several times, and in 1794 stood a vigorous siege, and held out until all the advanced works were levelled with the ground, and until 4 assaults had been made by the French, when it capitulated. It was restored in 1816 under the direction of the duke of Wellington.

**CHARLES**, a S. W. co. of Md., separated from Va. by the Potomac river; area 450 sq. m.; pop. in 1850, 16,162, of whom 9,584 were slaves. The surface is uneven and the soil rather inferior. The forests consist mainly of oak, chestnut, ash, cedar, and locust trees. In 1850 this county produced 458,684 bushels of corn, 149,533 of wheat, 25,684 of oats, and 2,862,300 pounds of tobacco. There were 28 churches, and 784 pupils attending the public schools. The first settlement in Charles co. was made in 1640. Capital, Port Tobacco.

**CHARLES.** The sovereigns of this name will be treated according to the alphabetical order of the countries over which they ruled, viz.: 1, England; 2, France; 3, Germany; 4, Naples; 5, Sardinia; 6, Spain; 7, Sweden.

#### I. ENGLAND.

**CHARLES I.**, the second of the house of Stuart who sat on the English throne, was the 8d son of James VI. of Scotland and I. of England, and Anne, daughter of Frederic II. king of Denmark; born at Danfermline, in Fifeshire, North Britain, Nov. 19, 1600, previous to the accession of his father to the throne of England; became heir apparent to the crown on the death of his elder brother, Prince Henry, in 1612; was created prince of Wales in 1616; succeeded to the British throne on the demise of his father in 1625; and was executed Jan 30, 1649. At an early age he was thrown into that fatal association with worthless favorites, which seems to have been the bane of his house. In the beginning of the year 1623, a marriage had been negotiated at the court of Spain, principally by means of the earl of Bristol, the English



ambassador, between Charles and the infanta Maria, sister of Philip IV. of Spain. It was soon rendered obvious, however, that the marriage was after the heart of neither of the nations, if it was of either of the courts. At this juncture, at the instigation, it is believed, of Gondomar, the Spanish ambassador at London, and certainly of Buckingham, who was ambitious of the honor of completing a treaty which had been in suspense for above 7 years, the prince and the favorite suddenly left England in strict disguise, no person but the king himself being privy to the scheme, and arrived at the house of the earl of Bristol, in Madrid, on the evening of March 7, under the national alias of John and Thomas Smith. On Sept. 9 Charles and Philip of Spain—the marriage articles, never intended to be consummated, having been reciprocally confirmed by oath—parted, never to meet again. Buckingham and the Spanish prime minister Olivarez took leave of each other with mutual expressions of animosity, which, if they were in any sort untrue, were so because they fell short of the measure of their mutual hatred. From this moment the favorite unquestionably, and the prince in all probability, were determined irrevocably against the Spanish marriage. "From a careful review," says Dr. Lingard, "of all the proceedings connected with the Spanish match, it may be fairly inferred: 1st, that had the treaty been left to the address and perseverance of the earl of Bristol, it would have been brought to the conclusion which James so earnestly desired; 2d, that the Spanish council had ministered ample cause of offence to the young prince by their vexatious delays and their attempts to take advantage of his presence; 3d, that he, nevertheless, entered spontaneously into solemn engagements from which he could not afterward recede without the breach of his word; 4th, and that, in order to vindicate his conduct in the eyes of the English public, he was compelled to employ misrepresentation and falsehood. But the great misfortune was the baneful influence which such proceedings had on his character. He was taught to intrigue, to dissemble, to deceive. His subjects, soon after he mounted the throne, discovered the insincerity of their prince; they lost all confidence in his professions; and to this distrust may in a great measure be ascribed the civil war which ensued, and the evils which befell both the nation and the sovereign." It is worthy of remark, that when, shortly after the abandonment of the Spanish marriage and alliance, at a general conference between the 2 houses, before whom Charles disgraced himself by vouching for the truth of direct falsehoods stated by Buckingham, James received an address of congratulation on his having become sensible of the insincerity of the Spaniards, he directly disavowed his entertaining any such opinion, and refused to express any judgment as to the truth of Buckingham's relation. Not long afterward, when the favorite,

who was now supreme with Charles, insisted on the impeachment of Oranfield, earl of Middlesex, and was supported by the prince of Wales, the king told the duke that he was a fool, and was making a rod for his own back, and the prince, that he would live to have his belly full of impeachments. Before the king's death, the marriage of Charles was arranged with Henrietta Maria, daughter of Henry IV. of France and his 2d wife, Maria de' Medici; at least as great if not greater concessions being made to the English Catholics, in order to gratify the French king, Louis XIII., and his minister Richelieu, than had been demanded by the court of Spain, against which war was simultaneously declared. James I. died, however, before the marriage was even ratified; but 8 days after the accession of Charles, March 27, 1625, the ratification took place, and after the lapse of about 8 months, during which delays occurred owing to the illness of Louis, the queen was received by Charles at Dover, formally married by him at Canterbury, and installed at Hampton court, the entrance of the royal party into the metropolis being prevented by the ravages of a terrible pestilence, said to be the most destructive within the memory of man. The marriage itself was insuspicious; all its influences, both social and political, were of evil consequences to both king and kingdom; and the wife of Buckingham's bestowal was to say the least, as fatal to the prospects of Charles as were the teachings and example of that minister, and the animosity excited against the crown, among the commons, by his baseness. Charles I., though he had education, some accomplishment, and a calm, grave demeanor, which obtained for him the credit of far more wisdom than he possessed, had neither quickness of perception nor depth of intellect. He was slow, formal, destitute of prevision, impossible to convince, and, when he ought to have been persuaded, inaccessible to persuasion. Add to this, that long before Buckingham ever began to shape his faculties, he had seen nothing practised, and heard nothing praised by his father, or in his father's court, but deception, insincerity, the propriety of obtaining the end by any means however false or dishonest, in a word, what James loved to call the art of kingscraft. His position, moreover, was such that when he came to the throne, no one but a man of astonishing faculties, of the clearest comprehension, the soundest judgment, the most indomitable will, the most thorough wisdom, could have possibly succeeded in piloting himself and the ship of state through the crisis of the inevitable storm. Unfortunately for Charles, he lived at a period of transition, which he had not the perception to discover to be such; and at the very moment when it would have required a firmer hand than his to retain his hold on what his father had left to him, *in statu quo*, he determined to recover something of what his predecessors had once held, and had lost before him. To govern without parliaments was no new

wish on the part of Charles; nor was the procuring supplies by such means as he could without their aid, by benevolences, loans, extortions of any kind that would be tolerated, any new attempt on the part of kings, or any greater wrong in him than it had been in his father, or in Queen Elizabeth, or in Henry VIII., or in Henry VII., every one of whom had regarded parliaments as a necessary evil, to be endured only when it could not be avoided, to be dispensed with as long as, and whenever, it was found possible. All had avoided summoning them, except when government could not be carried on without them; all had at times cajoled, at times snubbed, and whenever they dared bullied them. Each one of them, unless it were perhaps James, had committed far grosser breaches of privilege, without their raising so much as a murmur of discontent, than Charles ever attempted. His principal error seems to have been, that he invariably made concessions when he ought to have been firm, and was invariably obstinate when he ought to have made concessions; his chief fault, that no one could rely on him, friend or enemy; that he never was true to any promise, either of support to the one, or of amnesty to the other; so that his friends dreaded his victory almost as much as they did his defeat, for they knew that no promise would withhold him, if successful, from abusing his success. At the opening of his reign, involved in war with Spain, and wanting money to conduct it, he was compelled to summon a parliament, which, as soon as it met, began to consider grievances, and proceeded to impeach the duke of Buckingham, without granting any moneys. To avoid sacrificing his favorite, the king dissolved the parliament, quarrelled with the house of lords as well as with the commons, and committed 2 members, Digges and Eliot, and 2 peers, Bristol and Arundel, to the tower. It was evidently at the instigation of Buckingham, which coincided with his naturally arbitrary, unyielding, and hasty temper, that, being already engaged in hostilities with Spain, which he could not hope to prosecute successfully without the aid of his parliament, he plunged into yet another and a wholly unnecessary war with France, and proceeded to carry on both by means of forced loans and expedients undeniably illegal, as they were odious to the people of England. Two years afterward, a second parliament was summoned, and again adjourned, just in time to prevent Buckingham from being declared by vote the "grievance of grievances," and the chief cause of all the calamities of the kingdom. On the following day it was prorogued by the king, after giving the royal assent to the bills of subsidy; but not until it had passed the petition of right, to which the people always appealed as to their chief protection against the encroachments of the prerogative, and to which the crown was ultimately forced to submit. In the mean time, the English arms were covered with disgrace; yet still the king persisted in retaining Buckingham at the head

both of his councils and of his army; and that favorite was on the point of again setting sail from Portsmouth, in all probability to bring fresh discredit to the English fleet and army, when his career was cut short by the dagger of a fanatical assassin, Felton, in time to save the military prestige of his country from further degradation, but not to spare his king the universal odium and distrust of the nation. Almost immediately after the death of Buckingham, Rochelle, for the relief of which the war with France had been nominally, at least, undertaken, surrendered, and the last stronghold of Protestantism in France, and one of its strongest bulwarks throughout the whole world, had ceased to exist, the blame and disgrace of its fall both resting wholly upon Charles; who, if he could have at this stage of proceedings but consented to a few necessary and moderate reforms, and would have set himself at the head of a Protestant movement, would have been supported by his people to almost any extent, and might have become as popular as he was ever afterward odious throughout the realm. At this moment, in thoroughly ill humor, the parliament reassembled; and, although ordered by the royal message to take the bill for tonnage and poundage into immediate consideration, proceeded to take up the grievances, religious and political, of the community, the former having the precedence, owing to the increasing influence of the Puritanic party. The king was now guilty of a piece of mean and dishonest sophistry and trickery, which cannot be explained or understood, in substituting for the petition of right, which had passed into a law and had received the royal assent, a garbled edition from which the assent had been removed, and the evasive answer which he had been compelled to cancel in the last session attached to it instead. The house was outraged. Charles himself, repenting of his folly, would, if he could, have laid the storm he had raised. But it was too late. The commons proceeded to the strongest measures. The speaker endeavored to adjourn the house, in obedience to an order he had received from the king. They again refused to adjourn, and ordered the speaker to put to the vote a remonstrance against the bill of tonnage and poundage; and when he refused to do so and arose to depart, he was held down by force in his chair by Holles and Valentine, while the former delivered an extraordinary and violent protest, declaring all persons enemies to the country who should attempt to bring in Popery, Arminianism, or other doctrines obnoxious to the true and orthodox church; who should advise the taking tonnage or poundage; or who should pay tonnage or poundage, the same not being granted by parliament. This done, they adjourned themselves just in time to prevent the doors of the house from being forced by the captain of the guard; and the next morning the parliament was dissolved by the king in the house of lords, without sending for the commons. How far the

conduct of the house of commons was on this occasion strictly constitutional, was then, and is still, a matter of dispute. They had always asserted the right to adjourn themselves, but heretofore had carefully avoided coming into collision with the crown. It cannot be denied, however, that the course pursued by the king, unadvised by any particular favorite or minister, had produced the state of things of which he henceforth complained. For, hereafter, he could be induced to regard every act in opposition to his will in no light but that of an act of treasonable and premeditated resistance to his just authority, forgetting entirely that his own was the first clearly visible and overt false step. One must not, however, at this stage charge him with an intentional and deliberate breach of parliamentary privilege, much less with a design to establish an absolute government and extinguish every semblance of parliaments or parliamentary freedom, for he had in the first instance some reasonable cause of complaint, any more than he must accredit to the parliament the determination to make of the king a mere puppet of their will. Both designs arose soon after, and on both sides with nearly equal injustice. Thus far, it is nearly certain that each side honestly believed itself to be clearly and indisputably in the right; while one of them, the king, was, though it was perhaps impossible that he should then perceive it, almost wholly in the wrong. It was but a short time before he made himself so entirely. Nine members of the lower house were now arrested, and being brought up by writ of habeas corpus must, in conformity with the petition of right, have been discharged or admitted to bail, when Charles most unwarrantably placed them in the hands of the lieutenant of the tower, and forbade him to produce them in court. Subsequently, they were offered their discharge on bail on their giving security for good behavior, which they refused, as such a proceeding would imply a confession of guilt. Thereafter they were ordered to plead to a criminal information filed against them, to which they objected that the court of king's bench had no authority to sit in judgment on their conduct in parliament, which objection was most sophistically overruled, on the ground that their behavior was extra-parliamentary, and therefore liable to censure *extra parlamentum*. Whereupon 3 of them, the most obnoxious, Eliot, Holles, and Valentine, were imprisoned during the royal pleasure, and ordered, before liberation, to make submission and pay fines to the king, respectively, of £2,000, £1,000, and £500. Eliot died in the tower, of disease aggravated by confinement, refusing to make submission, and being refused any mitigation of his penalty until he should do so, in 1682, after 3 years' rigorous imprisonment. He was considered a martyr for the sake of liberty and justice, and it would be hard to say whether the conduct of Charles was more impolitic or more unworthy. He violated not only the established privileges of parliament,

but violently abrogated the concessions made and sanctioned by himself, by his own assent regularly given to a bill which had been regularly passed, after every illegal method had been taken to prevent it by underhanded means from becoming a law. By this conduct, Charles fully justified his enemies in their assertion that he was utterly untrustworthy, and that it was clear that so long as he had power he would use it at his pleasure in defiance of all law, and to the falsification of his own royal word, however solemnly pledged. Whatever encroachments the 2 first parliaments, of 1635 and 1636, might have made on the prerogative in refusing to grant the tonnage and poundage for life, as had been the custom for 2 centuries, and that before the king had shown any tyrannical dispositions; and in impeaching Buckingham "on common report," without hearing evidence against him, which was manifestly illegal; the king had now put himself so thoroughly in the wrong that he had silenced all his own honest apologists, and filled every person in the kingdom, but the few who desired to see the establishment of an absolute monarchy and a persecuting church, with the gravest and darkest apprehensions. Nor was it to be denied that if the first parliaments had gone beyond the letter of the constitution, the conduct of Buckingham was such as would justify in our days a vote of want of confidence, and the refusal to grant supplies until a change of ministry. Such was not, however, as yet the practice, nor was it within the established privileges of parliament. Charles now, as if resolved to try his people to the utmost, not only determined, but declared by proclamation his determination, to govern without parliament; and in fact he did so for no less than 11 years, during which he gave the church entirely into the hands of Laud, and the state into those of Sir Thomas Wentworth, created earl of Strafford, who both severally promised him to use all their endeavors to render him absolute in both departments of government. By the extreme high church assumptions of Laud, the Puritans of England were led to believe that Charles and his primate were bent on reintroducing the ancient worship of Rome; and although the suspicion was not true, yet, knowing that it existed, none are to be blamed but they, for persisting in a course of conduct which could but aggravate and confirm it. Ireland, in the mean time, by the oppressive government of Wentworth, whose only object was to raise money in order to meet his master's exigencies without resorting to the aid of parliament, was driven to the verge of rebellion. Scotland, maddened by the king's attempt, at the instigation of Laud, to force Episcopacy upon her contrary to the fundamental law of the kingdom, actually rose in arms, invaded England, gained possession of Northumberland and Durham, the king having made a fruitless attempt to raise funds to oppose her armies by summoning a parliament, of which he asked supplies, but which, as it proceeded, as the last,

rist to consider grievances, he dissolved within 10 days after its assembling, before it had given any positive reply to his demand. The lords were in his favor; and clearly he was too pre-emptive, for had the commons refused him any aid, most men would have deemed the dissolution justifiable; had they granted any, even the smallest, the Scots would have been deterred from their attempt. At this time Charles had a superb fleet of above 60 ships at sea, which he maintained by the illegal levy of ship money; but army he had none on which he could depend, nor any means to raise one. Wherefore, unless he would see the Scots march to York and take possession of the northern metropolis, there was no resource but to convoke the great council of the peers at York, who immediately demanded the assembling of the parliament and to treat with the Scottish rebels. In 1640 assembled the parliament which did so much, in the first instance, for the liberties of England, and afterward was guilty of such odious usurpation, known in history as the long parliament. Its first act was to impeach and then to proceed by attainder against both Laud and Strafford, the latter of whom was condemned and executed, abandoned by the king, or whom he had made great sacrifices. Some just and salutary laws were passed by this parliament; some illegal practices, which had been usual with the later English monarchs, were repressed; some grievances redressed; some rights of the subject firmly established; but, from the moment when it voted itself incapable of dissolution, the parliament changed places with the king; became distinctly the usurping power; made infinitely greater attacks, both on the prerogative of the crown and on the rights of the individual, than the most despotic of kings had ever attempted; arrogated to itself the power of regulating everything in the realm, from the highest to the lowest; constituted itself a court of law, a court of justice, and a court of morals, exercising powers the most unheard of, and, in fact, altering the whole constitution of England from a monarchy into a perfect democracy, of which itself was the indefeasible and the sole exponent and ruler, until it should think proper to abdicate its own authority and descend from supreme despotism into private life, which no one supposed it ever would do, and, in fact, which it never did. An appeal to arms was now necessary, if England was to be a monarchy; for, as the king truly said, he might be called king, and be served on the knee, but he should be no more king than the meanest of his subjects, should he concede all that was now asked of him. Had he conceded a little on his first accession, he might, probably, have been the most popular king in Europe. Then he would concede nothing, and had irritated all his enemies to madness. When the head of Strafford was asked of him, and every reason of expediency, honor, faith, commanded him to be firm, he yielded. Now he was tied to the stake, and

could but fight with what weapons he had left to him. He set up his standard at Nottingham, Aug. 22, 1642; but the parliament was really in arms the first, and Col. Cromwell, at the head of a troop of horse, had seized the plate of the university of Cambridge, which would otherwise have gone to arm and equip men for the king. The first blood was shed at Edgehill (Oct. 23), where, as in all the first actions of the war, the high spirit and chivalrous courage of the undisciplined cavaliers prevailed over the inferior strength, spirit, and enthusiasm of their equally undisciplined antagonists. It is certain that, after the battle of Reading (April 26, 1643), and the advance to Brentford, London might have been taken, and the war concluded at a blow, but that the royalists, who had perceived by the pretensions of the king in the late negotiations at Oxford that he had abated nothing of his despotic intents, dared not allow him to prevail. The remodelling of the parliamentary army followed; Cromwell and Fairfax became its generals; the former introduced a discipline as perfect as is known in any modern service, and created a spirit of enthusiastic fanaticism, equal to the spirit of enthusiastic loyalty and chivalry which animated the cavaliers; and by the union of the two, raised the late despised parliamentarians to be, what they proved themselves thereafter in every European country, the best troops in the world. Marston Moor (July 3, 1644) and Naseby (June 14, 1645) followed; the last blow was struck by Sir Jacob Astley, for the crown, at Stow-on-the-Wold (March 21, 1646), when he told his captors: "My masters, you have done your work, and may now go play, unless you please now to fall out among yourselves." After some attempts at negotiation, marked by his usual insincerity and chicane, with the leaders of the parliament and the leaders of the army, neither of whom he chose to trust, while neither dared to trust him, Charles delivered himself up to the Scots, May 5, 1646, who, on Jan. 30, 1647, gave him up to the commissioners of the English parliament. Cromwell, who as yet entertained no definite views, nor saw any way of attaining the great elevation which he subsequently reached, was prepared to play the part subsequently played by Monk; and Fairfax, who was a truly upright and honorable man, and averse to all extreme courses, was ready to support him. Yet, even now, when terms were offered him by the Independents, so advantageous that Sir John Berkeley, one of his trustiest adherents, declared that "a crown so near lost was never yet so easily recovered as this would be, were things adjusted on these terms," the king madly refused to concede any thing, broke off all terms with the army, commenced new negotiations with the Presbyterians, and ultimately convinced both parties—all parties—that there was no truth in him. The discovery of a fatal letter to his wife, in which he assured her that he designed for those rogues, Ireton and Cromwell, no reward but that "for a silken garter, they should be fitted with a hempen rope," destroyed

him. From that moment the chiefs of the army saw that the question lay between their own lives and his life; and they, of course, decided that it should not be their own, if they could help it. Having been taken on June 4 by Cornet Joyce out of the hands of the commissioners and brought to the army, then lying at Triplow Heath, and now in open rebellion against the parliament, he was taken on Aug. 16 to Hampton court, from which he escaped Nov. 11, eventually seeking refuge with Hammond, the parliamentary governor of the Isle of Wight. Here he was imprisoned in Carisbrooke castle till Nov. 30, 1648, when, by an order of the council of officers in the army, he was removed to Hurst-castle, on the opposite coast of Hampshire. The now dominant army promptly suppressed all risings in his favor. A force in the Presbyterian interest, under the duke of Hamilton, was completely routed by Cromwell at Langdale, near Preston, Aug. 17. On Dec. 6 the house of commons was invaded by Col. Pride, with a strong detachment of soldiers, and all members ejected except about 150, who were in the Independent interest. On Dec. 23, Charles was brought in custody to Windsor, and on Jan. 15, 1649, to St. James's. On Jan. 30 he was brought to trial in Westminster hall, before the so-called high court of justice. Sentence of death was passed upon him, Jan. 27, and he was executed by decapitation on a scaffold erected in front of the banqueting house at Whitehall, Jan. 30, at 2 P. M.—Charles I. had 8 children by Queen Henrietta, 6 of whom survived him, viz.: Charles and James, afterward kings of England; Henry, duke of Gloucester; Mary, the wife of William, prince of Orange, and the mother of William, king of England; Elizabeth, born 1635, who died a prisoner in Carisbrooke castle soon after her father's death, Sept. 8, 1650; and Henrietta Maria, the wife of Philip, duke of Orleans, from whom, through a daughter, is descended the royal family of Sardinia. Charles was an elegant writer of English, and, in the early part of his reign, a zealous patron of the fine arts.—The writings attributed to him are indicated in Horace Walpole's "Royal and Noble Authors," and have been published under the title of *Reliquia Sacra Carolina*. Among them is the famous work, the *Eikon Basilike*, or "Portraiture of his Sacred Majesty in his Solitudes and Sufferings;" his claim to its authorship has been much disputed, though advocated by the Rev. Dr. Christopher Wordsworth, in his book entitled, "Who Wrote the Eikon Basilike?" See Clarendon's "History of the Rebellion;" Rushworth's "Historical Collections;" Whitelock's "Memorials of English Affairs," &c.; and among the more recent works, those of Brodie, Godwin, and Disraeli.

CHARLES II., the 2d son of the preceding (the first son, Charles James, having died on the day of his birth, March 18, 1629), born May 29, 1630, died Feb. 6, 1685. In 1642 he was appointed by his father commander of the troop of

horse which he raised as a body guard at York, and 8 years afterward he was sent to serve with the royal troops in the west with the rank of general. After the battle of Naseby (1645), the prince retired to Scilly, and subsequently to Jersey, where he remained until Sept. 1646, when he joined his mother in Paris. In 1649, while residing at the Hague, he received the news of the death of his father, and immediately assumed the title of king, but with little prospect of ascending the throne. Having left Holland to spend some time in Paris, he subsequently repaired to Jersey, whence he arrived in the north of Scotland, June 23, 1650, after having agreed to become king of Scotland on the conditions imposed by the Presbyterians, and after having been forced to take the covenant before landing. Proclaimed king at Edinburgh, July 15, 1650, he was crowned at Scoon, Jan. 1, 1651. Cromwell, however, having already conquered the greater part of Scotland, Charles resolved on marching to the south, entered England Aug. 6 of the same year, and took possession of the city of Carlisle, where he was proclaimed king. The battle of Worcester (Sept. 3), however, in which he was defeated by Cromwell, put an end to this enterprise. Having escaped to the continent, the news of Cromwell's death in 1658 reached him in Brussels. In order to be able to avail himself of the confusion which arose in England after the downfall of Richard Cromwell's government, Charles stationed himself at Calais in Aug. 1659, but it was not till April, 1660, that he succeeded during his stay at Breda in opening a negotiation with Gen. Monk. His restoration to the throne of England was voted by parliament on May 1 of that year, and on May 8 he was proclaimed king in London, which city he entered May 29, having departed from the Hague 6 days before. His journey to London was one continued triumph; and the whole of the country through which it passed bore the aspect of a universal fair-day. So great was the rapture of loyalty with which Charles was received, that, with his usual wit, he observed to some one of his company, that he could not see for the life of him why he had stayed away so long, when every body seemed so charmed with him now that he was at length come back. He was received with open arms, reinstated without being asked to give a guarantee, or to make a concession. "It has been," says Macaulay of Charles, "too much the practice of writers, zealous for freedom, to represent the restoration as a disastrous event, and to condemn the folly or baseness of that convention which recalled the royal family, without exacting new securities against maladministration. Those who hold this language do not comprehend the crisis which followed the deposition of Richard Cromwell. England was in imminent danger of sinking under the tyranny of a succession of small men, raised up and pulled down by military caprice. To deliver the country from the

domination of the soldiers was the first object of every enlightened patriot; but it was an object which, while the soldiers were united, the most sanguine could scarcely expect to attain. On a sudden, a gleam of hope appeared. General was opposed to general, army to army. On the use which might be made of that one auspicious moment depended the future destiny of the nation. Our ancestors used that moment well. They forgot old injuries, waived petty scruples, adjourned to a more convenient opportunity all dispute about the reforms which our institutions needed, and stood together, cavaliers and roundheads, Episcopalians and Presbyterians, in firm union for the old laws of the land against military despotism. The exact partition of power among king, lords, and commons might well be postponed, until it had been decided whether England should be governed by king, lords, and commons, or by mirrassiers and pikemen." The reign of Charles was marked by disasters and disgraces of all kinds. The Dutch fleets not only swept the channel, but entered the Thames, burned the stores and dockyards at Chatham, and terrified the citizens of London, but maddened even more than they terrified them with the roar of hostile cannon. Dunkirk, a fortress won by the valor of the Cromwellian soldiery, in which the pride of the English nation was intimately involved, and which was regarded as a compensation for the loss of Calais, was ignominiously sold to the French king, of whom Charles himself was the greediest and neediest pensioner, where all his servants were greedy and needy. A frightful conflagration destroyed half the city of London; a hideous plague depopulated whole districts. The name and character of Englishman, abroad, had sunk to the lowest state from the proud preëminence which it had occupied during the stern domination of the great protector. The whole reign of this most brilliant and amiable—whom even his enemies could not hate—but most worthless and purposeless of all the Stuarts, was but one general saturnalia and grand orgie of vice, licentiousness, meanness, and riot. Married May 21, 1662, to a virtuous and amiable Portuguese princess, Catharine of Braganza, daughter of John IV., he outraged, neglected, and injured her in the tenderest point, encouraging his harem to insult her before his face. Sworn to maintain Protestantism, he signed a secret treaty at Dover by which he pledged himself to make public profession of the Roman Catholic religion, to join his arms to those of Louis XIV. for the purpose of destroying the power of the United Provinces, and to employ the whole strength of England by land and sea in support of the rights of the house of Bourbon to the vast monarchy of Spain; Louis, on the other hand, engaging to pay a large subsidy, and promising that if any insurrection should break out in England he would send an army at his own charge to support his ally. This treaty was signed at Dover

in May, 1670, just 10 years after the day on which Charles landed at that very port amid the acclamations and joyful tears of a too confiding people. His scheme was frustrated by the refusal of the commons to grant him supplies for the war, and by their compelling him to dismiss his ministry, Cliford, Arlington, Buckingham, Ashley, and Lauderdale, of the initial letters of whose names is composed the well-known enigmatic cipher, cabal. An alliance with France brought about a quarrel with Holland. War against that country was declared in 1672 (March 17), but the indignation of the people being aroused by the proceedings of the government, the prime minister, Shaftesbury, retired from the cabinet, and Charles was compelled to make peace with Holland at the beginning of 1674 (Feb. 28). The excitement produced by the so-called popish plot, in 1678, led Charles to the fatal step of dissolving the parliament. The first of the 3 parliaments which he afterward successively called, met in March, 1679, and was noted for passing the habeas corpus act. The last of them was summoned to meet at Oxford, March 21, 1681, but proving as little compliant as the two preceding, he dissolved it, after a week's session. From that year Charles governed without a parliament, and his arbitrary course at length provoked the Rye-house plot, June 14, 1688, instigated by friends of constitutional liberty. The detection of the plot brought the noble heads of Lord Russell and Algernon Sidney upon the block; and Charles's reign, thus stained with the blood of these martyrs of liberty, was soon brought to a close. He died suddenly of apoplexy, and his death, as usual in that age, although without the smallest shadow of grounds, was attributed to poison. When he was almost *in articulo mortis* he declared himself a Roman Catholic, and received extreme unction, and the last rites of the church, at the hands of a proscribed priest, Father Huddleston, who was introduced by a secret passage, in disguise, into the royal bedchamber.—The following sketch of his character, by Macaulay, is almost an epitome of his reign: "He had received from nature excellent parts and a happy temper. His education had been such as might have been expected to develop his understanding, and to form him to the practice of every public and private virtue. He had passed through all varieties of fortune, and had seen both sides of human nature. He had, while very young, been driven forth from a palace to a life of exile, penury, and danger. He had, at the age when the mind and body are in the highest perfection, and when the effervescence of boyish passions should have subsided, been recalled from his wanderings to wear a crown. He had been taught by bitter experience how much baseness, perfidy, and ingratitude may lie hid under the obsequious demeanor of courtiers. He had found, on the other hand, in the huts of the forest, true nobility of soul. When wealth was offered to any who would betray him, when

death was denounced against all who would shelter him, cottagers and serving men had kept his secret truly, and had kissed his hand under his mean disguises with as much reverence as if he had been seated on his ancestral throne. From such a school, it might have been expected that a young man, who wanted neither abilities nor amiable qualities, would have come forth a good and great king. Charles came forth from that school with social habits, with polite and engaging manners, and with some talent for lively conversation, fond of sauntering and frivolous amusements, incapable of self-denial and of exertion, without faith in human virtue or in human attachment, without desire of renown or sensibility to reproach. According to him, every person was to be bought. But some people haggled more about their price than others; and when this haggling was very obstinate and very skilful, it was called by some fine name. The chief trick by which clever men kept up the price of their abilities was called integrity. The chief trick by which handsome women kept up the price of their beauty was called modesty. The love of God, the love of country, the love of family, the love of friends, were phrases of the same sort, delicate and convenient synonyms for the love of self. Thinking thus of mankind, Charles naturally cared very little what they thought of him. Honor and shame were scarcely more to him than light and darkness to the blind. His contempt of flattery has been highly commended, but seems, when viewed in connection with the rest of his character, to deserve no commendation. It is possible to be below flattery, as well as to be above it. One who trusts nobody will not trust sycophants. One who does not value real glory, will not value its counterfeit. . . . The facility of Charles was such as has, perhaps, never been found in any man of equal sense. He was a slave without being a dupe. Worthless men and women, to the very bottom of whose hearts he saw, and whom he knew to be destitute of affection for him, and undeserving of his confidence, could easily wheedle him out of titles, places, domains, state secrets, and pardons. He bestowed much; yet he neither enjoyed the pleasure nor acquired the fame of beneficence. He never gave spontaneously; but it was painful to him to refuse. The consequence was, that his bounty generally went, not to those who deserved it, nor even to those whom he liked the best, but to the most shameless and importunate suitor who could obtain an audience. The motives which governed the political conduct of Charles II. differed widely from those by which his predecessor and his successor were actuated. He was not a man to be imposed upon by the patriarchal theory of government and the doctrine of divine right. He was utterly without ambition. He detested business, and would sooner have abdicated his crown than have undergone the trouble of really directing the administration. Such was his aversion to toil, and such his ignorance of

affairs, that the very clerks who attended him when he sat in council could not refrain from sneering at his frivolous remarks and childish impatience. Neither gratitude nor revenge had any share in determining his course; for never was there a mind on which both services and injuries left such faint and transitory impressions. He wished merely to be a king such as Louis XV. afterward was; a king who could draw without limit on the treasury for the gratification of his private tastes, who could hire with wealth and honors persons capable of assisting him to kill time, and who, even when the state was brought by maladministration to the brink of ruin, could still exclude unwelcome truth from the purloins of his own seraglio, and refuse to see and hear whatever might disturb his luxurious repose. For these ends, and for these alone, he wished to obtain arbitrary power, if it could be obtained without risk or trouble. In religious disputes, which divided his Protestant subjects, his conscience was not at all interested, for his opinions oscillated in a state of contented suspense between infidelity and Popery."—Charles had no children by his queen. Among his natural children were: 1, James, duke of Monmouth, by Mrs. Lucy Walters, born at Rotterdam in 1649, ancestor of the dukes of Buccleugh; 2, Mary, also by Mrs. Walters; 3, Charlotte Jemima Henrietta Maria Boyle (alas Fitzroy), by Elizabeth Viscountess Shannon; 4, Charles, surnamed Fitz-Charles, by Mrs. Catharine Peg; 5, a daughter by Mrs. Peg, who died in infancy; 6, Charles Fitzroy, duke of Southampton, by the duchess of Cleveland; 7, Henry Fitzroy, duke of Grafton, by the same, ancestor of the dukes of Grafton; 8, George Fitzroy, duke of Northumberland, by the same; 9, Charlotte Fitzroy, by the same; 10, Charles Beaulieu, duke of St. Albans, by the famous Nell Gwynn, ancestor of the dukes of St. Albans; 11, Charles Lennox, duke of Richmond, by Louise Querouaille, a French woman, created duchess of Portsmouth, ancestor of the dukes of Richmond; and 12, Mary Tudor, by Mrs. Mary Davis.—See Bishop Burnet's "Own Time;" Evelyn's "Diary and Correspondence;" Samuel Pepys's "Diary and Correspondence;" Grammont's "Memoirs," by Hamilton; Jesse's "Court of the Stuarts."

## II. FRANCE.

CHARLES MARTEL, duke of Austrasia and mayor of the palace of the French kings, born in 689, died in 741, was the natural son of Pepin of Heristal, by his mistress Alpaida, and seemed at first doomed to an inferior rank on account of his illegitimate birth, as well as the dislike shown to him by his father and the hatred of Plectrada, his lawful mother-in-law. The 2d son of the latter, Grimoald, having been assassinated at Liège, Charles was charged with being the murderer and consequently thrown into a dungeon, while Plectrada was intrusted with the government and the guardianship of her grandson, who, although still a child, had been declared

mayor of the palace to the young king Dagobert III. The Franks were thus ruled by a woman in the name of 2 children. This could not be endured; and the Neustrians first rebelled against Plectruda, and the Austrasians liberated Charles from prison, and proclaimed him their duke. Under his command they invaded Neustria, gained several victories, and obliged their western brothers to acknowledge the authority of their leader. Thus Charles became sole lord of both kingdoms, permitting however the nominal reign of Clotaire IV., Dagobert III., Chilperic II., and Thierry IV. to continue from 716 to 737. But on the death of the last, Charles appointed no successor and retained the supreme power, although not assuming any higher title than that of duke of the Franks. His energetic government at home caused the powerful Austrasian aristocracy to submit, as well as the prelates of Neustria and Burgundy, while his valor enlarged the extent of the Frankish kingdom. He waged successful wars against several German nations; but his brightest laurel was won in his struggle against the Moslems, who, after the conquest of Spain, had crossed the Pyrénées and attempted to conquer Gaul also. The southern part of this country had been first successfully protected by the gallant Eudes, duke of Aquitania, who had even routed the Moslems in 721 in a great battle under the walls of Toulouse; but, overpowered by the immense forces of the invaders, he was eventually compelled to call for assistance upon the duke of the Franks. The Moslems had already penetrated as far as Poitiers, when Charles at the head of his Frankish and German warriors met them a few miles N. E. of that city. Both armies stopped, and passed 6 days in desultory skirmishes before engaging in a decisive battle. At last, on Oct. 3, 732, the powerful masses of Christian infantry received the charge of the Arabian cavalry, and, "fighting with breasts as firm as ramparts and with iron arms," withstood unbroken its repeated assaults until at sunset the Saracens retired to their camp. In the confusion and despair of the night the various tribes of the Orient, Africa, and Spain were provoked to attack each other, and the remains of the host were suddenly dissolved, every emir seeking safety by a precipitate flight. At sunrise the Franks to their unbounded astonishment perceived that the enemy had left their camp and were retreating in haste toward the south. The Moslems had not dared to encounter again such formidable warriors. This victory, which took place 100 years after the death of Mohammed, checked the power of his adherents and saved western Europe from their further invasions. Charles, from his conduct on this great occasion and the vigor of his arm, received the surname of Martel, the "hammer" of the Moslems. His prudence prevented him from pursuing the retreating army; but he subsequently renewed the war, and forced the Arabian emirs, who had maintained their

power over several cities of southern Gaul, to return to Spain. The whole of Aquitania was annexed to the Frankish empire, which was ruled by Charles, and after his death divided between his 2 sons, giving Austrasia to Carloman and Neustria to Pepin. The latter soon became possessed of the whole, and afterward assumed the title of king, being the first of the Carolingian dynasty.

**CHARLES I. (CHARLEMAGNE).** See **CHARLES I. OF GERMANY.**

**CHARLES II. (THE BALD),** the 4th king of the Carolingian dynasty, born June 13, 823, at Frankfort-on-the-Main, died Oct. 13, 877, in a village at the foot of Mount Cenis. The son of Louis le Débonnaire by his 2d wife, Judith of Bavaria, his birth gave rise to serious troubles between his father and his elder brothers. War followed, in which the old Louis le Débonnaire was harshly dealt with by his ungrateful sons; and his death, June 20, 840, found Charles holding nearly the whole western part of his father's empire. His claim being, however, disputed by his eldest brother Lothaire, who had assumed the imperial dignity, Charles, to maintain his rights, formed with his 2d brother Louis, king of Bavaria, an aggressive alliance against the emperor, and defeated him in a desperate battle fought June 25, 841, at Fontenay or Fontanet, in Burgundy. The victory, however, weakened their resources to such an extent as to prevent them from following it up. Charles and Louis renewed their alliance in a solemn meeting at Strasbourg, Charles taking an oath in the German language, and Louis in the vernacular of the people of Gaul. The words of this oath, which have been preserved, are the first monument of the Romance language, from which the French has sprung. The union of Charles and Louis brought Lothaire to terms; and the treaty of Verdun in 843 secured to the former the tenure of his kingdom, that is, the whole of Gaul W. of the Meuse, the Saône, and the Rhône, which henceforth was to be called France, and part of Spain N. of the Ebro. But the submission of all the provinces of this kingdom was far from being complete, and Charles had frequently to resort to arms against the people of Brittany and Aquitania. Under his reign the Normans, who had previously desolated the coasts of Gaul, invaded the country by ascending the rivers, burning and plundering the villages and the cities. Paris itself had to suffer by their ravages, Charles being unable to afford protection against them. On the death of his nephew, the emperor Louis II., Aug. 12, 875, Charles seized upon the imperial crown; but his power seems to have been rather diminished by this assumption of a new title. A few months later he was compelled to sign a decree by which the tenure of the counties was declared hereditary, which decree was the foundation of the feudal system in France. This was the last important act of his otherwise inglorious reign.

**CHARLES III. (THE SIMPLE),** the 8th king



of the Carolingian dynasty, born Sept. 17, 879, died at Péronne, Oct. 7, 929. A posthumous son of Louis the Stammerer, he was excluded from the throne first by his brothers, then by Charles the Fat of Germany, and finally by the election of Eudes. As soon, however, as he became of age, he asserted his claims to the crown, sought for the protection of the Carolingian princes of Germany, and was in 898 recognized as king by the majority of the French nation. Being unable to resist the incessant aggressions of the Normans, he concluded a treaty with their chief Rollo, at St. Clair-sur-Epte, in 912, by which he bestowed upon him as a duchy the whole N. W. part of Neustria, also giving him his sister in marriage. For a few years France enjoyed comparative quiet, but in 922 the barons revolted against the narrow-minded Charles, and elected as king Robert, the brother of Eudes. Charles at first defeated his rival, and even killed him with his own hand; but he was in his turn defeated by the son of Robert, Hugh the Great, count of Paris; and having sought a refuge with Herbert, count of Vermandois, he was detained by him as prisoner until his death. The party which opposed the Carolingians then reigned paramount, and it was not until 986 that Louis IV. *d'Outremer*, the son of Charles, ascended the throne of his ancestors.

CHARLES IV. (THE FAIR), the last king of the direct line of the Capetian dynasty, born in 1294, died at Vincennes, Jan. 31, 1328. The 8d son of Philip IV. the Fair, he succeeded his brother, Philip V. the Tall, in 1322, visited with severe punishment the Lombard money changers for their many extortions, the judges for their prevarications, and the barons for their unlawful encroachments upon private property. He secretly aided his sister Isabelle in her revolt against her husband, King Edward II. of England, made a futile attempt to be elected emperor of Germany, and died leaving his 8d wife, Jeanne d'Evreux, pregnant. On her being delivered of a daughter, the crown went to Philip of Valois, the cousin of Charles, and the grandson of King Philip III. the Bold. The Capetian direct line ended by 8 brothers succeeding each other: Louis X., Philip V., and Charles IV.; so did the collateral branches of Valois and Bourbon.

CHARLES V. (THE WISE), the 8d king of the family of Valois, son of King John II., born Jan. 21, 1337, died at Vincennes, Sept. 16, 1380. He was a prince of very little military genius, but great ability, with much taste for learning. Being in command of a body of the French army at the battle of Poitiers, he deserted the field at an early period, while his father and younger brother fought like heroes. On the captivity of the former (1356), he was appointed his lieutenant, and had to contend against a formidable popular rebellion, headed by Stephen Marcel, provost of the merchants of Paris, and Robert Leccocq, bishop of Laon. At length, after having succeeded in getting rid of the principal leader, who was murdered by one of his adherents, he assumed

the title of regent, and concluded in 1360, with the English, the treaty of Brétigny for the liberation of the king. By this treaty, Edward III. was to remain in the independent possession of all the provinces of the Loire, comprised under the general name of Aquitania, with the Poitou and the country around Calais; but he was to renounce his claims to the crown of France, as well as those to Normandy, Touraine, Anjou, Maine, Brittany, and Flanders; the ransom of John was fixed at 8,000,000 gold crowns, while 2 of his sons and several great lords of the kingdom were to be given as hostages. John was liberated; but the terms of his liberation not having been complied with, he returned to England, leaving for the 3d time the regency in the hands of Charles, who succeeded him on his death in 1364. Charles was now at full liberty to display the shrewdness of his policy, and soon worsted King Edward III., who had defeated both his father and grandfather. Being greatly assisted by the valor and prudence of his great constable Du Guesclin, he destroyed several armies of the English, and wrested from them the French provinces which they had held for years. On the death of Edward, the only places still left in their hands were Bordeaux, Bayonne, Oherbourg, Calais, and a few other fortresses. By timely assistance to Henry Trastámara against Pedro the Cruel, king of Castile, Charles had secured for himself an ally who was of great service in his naval contests, and consequently instrumental in his final success over England. Meanwhile, tranquillity, order, and prosperity had been restored to France; while several important learned institutions were founded, among the number the king's library, now the *bibliothèque impériale*. In his reign the Bastille was also erected, mainly with a view to hold the Parisians in submission. Charles V. was indeed, if not one of the greatest, at least one of the most useful of French kings.

CHARLES VI. (THE MAD, OR THE BLOODY), the 4th king of the family of Valois, born in Paris, Dec. 3, 1368, died Oct. 21, 1405. The son of Charles the Wise, he was but 11 years old when his father died; and his uncles, the dukes of Anjou, Berry, Burgundy, and Bourbon, undertook to reign in his name. A general rebellion broke out against their oppressive administration, especially in Paris, where the insurgents were called *Mailloins*, from the mallets with which they were armed. Young Charles was taken by the duke of Burgundy to Flanders, and won, Nov. 27, 1382, the battle of Roosebeke. This success resulted in the temporary submission of the great cities in France. The king's uncles availed themselves of this opportunity to levy new taxes upon the people, but Charles dismissed them in 1390, declaring that he intended to govern for himself; and for 3 years, at least, France enjoyed under his rule a wise and mild administration, which secured for the young king a popular affection which even subsequent misfortunes failed to obliterate. In 1399, Charles, while marching against the duke of

Brittany, was violently frightened by the sudden appearance of a ragged maniac, who stopped his horse and cried: "Do not proceed further, noble king; you are betrayed." This overpowered his already weak mind, and he fell into a state of derangement, which was the next year aggravated by his running the risk of being burned alive at a masquerade ball. Henceforth he was disabled from attending to the duties of his position; and his uncles again seized the reins of government, the duke of Burgundy managing to secure his own ascendancy. The king's brother, Duke Louis of Orleans, soon attempted to snatch the power from his hands, and 2 opposite parties, Orleanists and Burgundians, arose to divide the court and the nation. The contest grew fiercer when John the Fearless succeeded his father, Philip the Bold, and his hatred toward his cousin of Orleans could only be gratified by causing the latter to be murdered, Nov. 23, 1407. The powerful count of Armagnac, the leader of a formidable soldiery from the south of France, at once espoused the cause of Orleans, and henceforth this faction was called by the name of Armagnacs. Civil war commenced between these and the Burgundians, and the unfortunate king was entirely neglected and left to the care of menials; while his wife, Isabella of Bavaria, whom he had married in July, 1385, gave herself up to love affairs and political intrigues. The daughter of a horse dealer, Odette de Champdivers, sometimes styled the little queen, from having been his mistress, was almost the only one who brought any consolation to the king's distracted mind. During his lucid intervals he had sense enough to sympathize with the misfortunes of France. The condition of the country was becoming worse every day, when a new enemy appeared in the person of King Henry V. of England, who, landing on the coast of Normandy, gained a victory over the French at Agincourt, Oct. 25, 1415, as complete as those of Crécy and Poitiers. France was every where given up to pillage, murder, fighting, and bloodshed. At the end of 4 years, there seemed to be a lull, and negotiations were entered into; but the treacherous murder of John the Fearless, perpetrated in the presence of the dauphin Charles, Sept. 10, 1419, gave a new impetus to the civil war. Philip the Good, son of John the Fearless, eager to avenge his father's death, with the treacherous wife of Charles, and King Henry V. of England, concluded a treaty at Troyes, May 21, 1420, in virtue of which the latter received the hand of the king's daughter Catharine, with the regency of France for the present and the assurance of succeeding to the throne after the king's death. In all these transactions the unfortunate prince had of course nothing to do, except to sanction them by his presence or signature. Henry V. did not long enjoy his prospect of grandeur. He died Aug. 31, 1422. Charles himself died shortly afterward, leaving most of France in the hands of the English.

CHARLES VII. (THE VICTORIOUS), the 5th

king of the house of Valois, born in Paris, Feb. 22, 1403, died at the castle of Mehun-sur-Yèvre, near Bourges, July 22, 1461. The 5th son of Charles VI. and Isabella, he became by the early death of his brothers heir apparent to the crown in 1416. In 1417 he was appointed lieutenant of the kingdom, and 2 years later he assumed the title of regent, without however being able, on account of his indolent habits, to exert any authority; he was but a tool in the hands of his favorites, most of them leaders of the Armagnac faction. On the death of Henry V. and Charles VI. in 1422, Henry VI. of England was proclaimed king of France, at St. Denis, and his authority recognized by the majority of the people, while Charles was supported only by a few citizens of central and southern France. He was so poor and powerless that his enemies called him the *roi de Bourges*, as if this city were the whole of his monarchy. The duke of Bedford, who governed in the name of Henry VI., successfully waged war against Charles, and the English troops, victorious in several encounters, concentrated themselves around Orleans, which was the stronghold of the French king. His position was utterly helpless, when suddenly a young peasant girl, Joan of Arc, the celebrated "Maid of Orleans," came to his rescue. Her enthusiasm, patriotic devotion, and confidence in victory, inspired the French troops with new ardor, while terror spread among the English. Orleans was delivered, the enemy repeatedly defeated, and the king triumphantly brought to Rheims, where he received the holy unction. From this time, Charles was indeed the real king in the eyes of the whole people, who every where rose in his behalf. The war became a national one, in which the lower classes, who had until then remained nearly indifferent, took an active part. The capture and death of the heroine, far from damping the popular enthusiasm, kindled a new spirit. The French gained considerable advantages; and finally the treaty of Arras, concluded in 1435, between the king and Philip of Burgundy, insured their ultimate triumph. Henceforth Charles appeared to be a new man; he distinguished himself by wisdom, prudence, and bravery; he achieved the task which had been commenced by others, and partly deserved the glorious appellation which has been attached to his name. Peace was reestablished, order and tranquillity prevailed, and prosperity revived throughout the kingdom. A regular army was organized from 1439 to 1448; the finance department, the administration of justice, and the other branches of the government were put on a better footing. In many of his reforms Charles was assisted by Jacques Cœur, the richest and most enterprising merchant of the time, whom he had made minister of finance. The improved condition of the country secured the sympathies, and, on the renewal of hostilities, the assistance even of those provinces which were still held by the English. Consequently, in the space of a few

months, the foreigners were expelled from Normandy and Guienne; and in 1453 the whole of France had returned to its native king, except Calais, which alone remained for another century in the hands of the English. In this great work, Charles VII. had been powerfully assisted by the popular feeling, the prominent representatives of which were Joan of Arc, the heroine, and Jacques Coeur, the merchant: to both he proved ungrateful, leaving the former at the mercy of the English, without the slightest attempt at her liberation; and proscribing the latter, to whose financial assistance he was especially indebted. The celebrated pragmatic sanction, which secured the freedom and privileges of the Gallican church against the encroachments of the Roman see, was negotiated by him in 1488. His later years were embittered by the intrigues and rebellions of the dauphin; his fear of being poisoned by his unnatural son became so overwhelming, that he finally refused to take any food, and died of starvation.

CHARLES VIII., the 7th king of the house of Valois, born at Amboise, June 30, 1470, died April 7, 1498. Being only 18 years of age on the death of his father, Louis XI., his eldest sister, Anne de Beaujeu, seized the reins of government, overpowered Louis of Orleans and his associates, who attempted to resist her, and gave for a few years to France a degree of peace and prosperity, till her brother became of age. The chivalric romances and accounts of Charlemagne's heroic deeds had imbued his rather weak mind with the idea that it was his mission to restore the Roman empire, and to take Constantinople from the Turks. At the head of a powerful army he entered Italy in 1494, triumphantly marched through the peninsula, and took possession of Naples. Satisfied with his military exploits, Charles left a part of his army in Naples, and hurried home with a select body of about 9,000 soldiers. When in the neighborhood of Parma, he met at Fornovo an army of 40,000 Italians, who sought to intercept his return; but in spite of their numbers the young king routed them and triumphantly re-entered France. He soon learned that his army had been defeated by the Spaniards under Gonzalvo de Cordova, and that Naples had returned to its old allegiance. He was planning a new expedition when he suddenly expired from the effects of an apparently trifling accident.

CHARLES IX., the 12th king of the family of Valois, born at St. Germain-en-Laye, June 27, 1550, died May 30, 1574. The 2d son of Henry II. and Catharine de' Medici, he succeeded his brother, Francis II., Dec. 5, 1560, when only 10 years old, under the regency of his mother. The hatred between the Catholics and the Protestants had been growing for years past; an attempt at conciliation through the conference of Poissy having proved a failure, hostilities soon broke out. The Protestants resorted to arms, headed by the prince of Condé.

After being successful in the first encounter, they were defeated at Dreux, in 1562, by the duke of Guise, who was assassinated a few months later while besieging Orleans. A treaty of peace, known as the edict of Amboise, was concluded (March 19, 1563) between the regent and the leaders of the insurgents. The war was renewed in 1567, when the Protestants were again defeated at St. Denis by Montmorncy. A new peace intervened, which was of very short duration, the enemies being again in the field toward the middle of 1568. This 2d war was signalized by the battles of Jarnac (March 13, 1569) and Moncontour (Oct. 3), won by Henry, duke of Anjou, the younger brother of the king; the peace, now believed to be final, returned again. The king himself, Queen Catharine de' Medici, and the whole court, seemed to be reconciled to the Protestant party; Coligni was received with great honor by his young sovereign, who fondly called him "Father," and required his advice in the administration of the government; the king of Navarre, afterward Henry IV., married the king's sister, Margaret; the other Protestant chiefs were welcomed at the court. Charles IX., above all, tried to foster concord and friendship between the recent enemies, so that those uninitiated in the secret councils of the court were assured that all was safe, when suddenly it was reported that Admiral Coligni had been shot by a man commonly known as the king's assassin. This was an awful warning, but it was too late for the Protestants to take measures for their security; they were unarmed and defenceless. On the night of Aug. 24, St. Bartholomew's day (1572), at a signal given from the Louvre, the Catholics of Paris rose in arms and mercilessly slaughtered their opponents, who had confided in the word of the king. It is difficult to determine what was the part of Charles IX. in the fatal deed. He seems to have acted under the pernicious influence of Catharine de' Medici. This terrible woman drew from him the frantic exclamation, which was construed as an order: "Well, then, kill them all, that not a single Huguenot may live to reproach me with their death!" He frequently afterward manifested signs of deep remorse, and breathed his last when only 24 years of age, amid dreadful corporal and spiritual sufferings.

CHARLES X., the 7th and last king of the family of Bourbon, born at Versailles, Oct. 9, 1757, died at Goritz, in Illyria, Nov. 6, 1836. He was the 4th son of the dauphin, son of Louis XV., and received at his birth the names of Charles Philip, and the title of count of Artois. After being very indifferently educated under the superintendence of the duke of La Vauguyon, he married, Nov. 16, 1773, Maria Theresia of Savoy, a younger sister of the countess of Provence, by whom he had 2 sons, the dukes of Angoulême and Berry. Being of a very profligate disposition, he neglected his wife, both for ladies at the court and common courtesans. Among the latter was Mlle. Duhamel, who enjoyed an unenviable celebrity. His

scandalous conduct was, however, somewhat restricted by the influence of the dauphiness Marie Antoinette, and his love for Mme. de Polastron. On one occasion he rashly insulted his cousin, the duchess of Bourbon, at the opera ball; and his duel with the duke, which grew out of this circumstance, seriously impaired the favor which his affable and courteous manners had gained for him. He tried to make amends by distinguishing himself at the siege of Gibraltar, but in vain; his levity and inconsistency had destroyed the last vestige of his popularity. When the revolution broke out, faithful to the traditions of his house, he became one of its most uncompromising enemies. But instead of supporting his unhappy brother, Louis XVI., he fled from Paris to Brussels, then to Turin, where he engaged in intrigues, the consequence of which was to increase the danger to which his brother was exposed. On May 20, 1791, he had an interview with the emperor Leopold at Mantua, and a few months later was present at the conference of Pilnitz, the only result of which was to give a new impetus to the revolutionary spirit in France. He continued to go about begging assistance for the royalist cause; meanwhile the king was arraigned before the convention, sentenced to death, and executed. The exiled prince, who now assumed the title of Monsieur, repaired to Russia, where Catherine II. presented him with a magnificently ornamented sword bearing this inscription: "*Donnée par Dieu pour le Roi.*" But this was a useless weapon to such weak hands. The ill-directed efforts of the Bourbons and their allies having proved fruitless on the Rhine, it was thought proper to give encouragement and assistance to the Vendéans or Chouans. Monsieur was consequently sent, Aug. 1795, with English ships, to effect a landing on the coast of Brittany. Although supported by a large number of emigrants and some 2,500 English troops, the brave Charette, who was in waiting for him, having gathered nearly 20,000 Vendéans, and engaged his word that 60,000 more would rise in arms on the arrival of a Bourbon, the prince did not dare to land, and his cowardice was the signal of the ultimate defeat of the monarchical party in western France, the heroic peasants of Brittany and Vendée being tired of giving their lives for princes by whom they were deserted. From this period to 1814, Monsieur lived in obscurity, residing mainly in England. On the fall of Napoleon, he repaired to Paris. On April 12, 1814, he was welcomed there by the provisional government, headed by Talleyrand. A part of the Parisian population hailed his return, while his affability of manners and kind words conciliated the good will of many. The most popular saying reported of him at the time was: "Friends, nothing is changed in France; there is only one Frenchman more." Notwithstanding this favorable beginning, 11 months had hardly elapsed when Monsieur was again compelled to leave France, after having vainly tried to secure the city of Lyons against

the approach of Napoleon. The last defeat of the emperor at Waterloo brought him back again to France in the train of the European armies. During the first years of the restoration, he kept aloof from public affairs. He was, however, the head of the ultra-royalist party, which so seriously interfered with the policy of Louis XVIII. That party at last prevailed by the accession of the Villèle cabinet, and the influence of Monsieur became prominent. He succeeded Louis XVIII., Sept. 16, 1824, under very favorable auspices, his brother not having been a favorite with the nation. At first he adopted some popular measures; but soon his government appeared to be ruled solely with a view to the reestablishment of the old régime. A bill to indemnify the emigrants for their losses during the revolution was introduced; this bill, by which the nation was to assume a thousand millions of new debts, in behalf of those who had actually borne arms against it, was adopted, March 27, 1825. This was a great triumph for the reactionary party. Soon another bill was passed, decreeing the most severe penalty against what was called sacrilege. In the legislative session of 1826, an attempt was made to alter the law of inheritance, so as to reestablish the right of primogeniture; this, however, failed. Another bill, to regulate or rather to destroy the freedom of the press, called *loi de justice et d'amour*, was not more successful. The public discontent was further increased by the favor shown by the government to the Jesuits who had reestablished themselves in France, under the new appellation of *pères de la foi*. At last the popular sentiment broke out during a review of the national guards, held April 29, 1827, by the king himself; he was received by the cries of "Down with the ministers," "Down with Villèle." Greatly provoked by these manifestations, his haughty answer was that he "came to receive homage, not lessons." On the same night a decree of dissolution was issued against the national guards. A few weeks later, the chamber of deputies was also dissolved, while the royalist party was reinforced in the chamber of peers by the addition of 76 new members. At the same time, the freedom of the press was entirely suppressed by the reestablishment of the censorship. To divert public attention, the government resolved on assisting Greece in her war of independence, but the glory achieved by French arms failed to restore popularity to the cabinet; and Charles X. at last consented to part with his ministers and choose new counsellors among the most liberal royalists. The Martignac ministry, formed Jan. 4, 1828, was the signal of a kind of reconciliation between the king and the nation. The measures then adopted were hailed with delight by the friends of constitutional liberty, but created the utmost dissatisfaction among the court party. The king, fearing the ascendancy of liberal principles and following the suggestions of the ultra royalists, dismissed the Martignac administration, and in-

trusted Prince Polignac with the formation of a new cabinet. The prince was indeed the truest representative of that old royalist party which had "forgotten and learned nothing." His mere name was considered as a challenge offered by the king to the nation; every one foresaw the coming struggle. In vain the government tried to assuage public opinion by the excitement of military success. The expedition against Algiers was undertaken; that stronghold of piracy was stormed on July 6, 1830. But all to no purpose; the interest of the whole nation was engrossed by home affairs. On the opening of the chambers, March 2, the king had made use of threatening language, and to this a majority of 221 deputies answered by voting an address declaring their want of confidence in the ministry. The king declined to receive the address, on which the chambers were adjourned, and on May 16 they were dissolved. New elections took place, and resulted in a still more powerful opposition majority. Incensed at this, and encouraged by the triumph of the French army in Algeria, the king resorted to a *coup d'état*. Decrees were promulgated to suppress entirely the freedom of the press; to dissolve the newly elected, but not yet opened, chamber of deputies, and prescribe an essential modification in the mode of election, so as to secure the triumph of the court party. These ordinances fell like a thunderbolt on Paris. Resistance was immediately organized. Barricades were built, and defended by bodies of workmen from the suburbs, and by artisans and printers, under the command of officers and young men from the polytechnic school. The insurrection was emphatically popular, and not confined to any particular class. The royal troops, under Marshal Marmont, offered but unwilling resistance, and were driven from the capital in less than 3 days. Charles X. was so little conscious of the danger of his situation that he remained quietly at the palace of St. Cloud; he learned but gradually the defeat of his troops, being to the last under the impression that he had to deal only with a riot. But it was a revolution, and when he attempted to avoid its consequences it was too late. He recalled the fatal ordinances, appointed a liberal ministry, and even abdicated in favor of his grandson, the duke of Bordeaux, the present count of Chambord, but all in vain; the chiefs of the revolution would not accept such proposals; the king had no alternative but to depart. He retired first to Trianon, then to Rambouillet, under the protection of his guards. In the latter place, he made some show of resistance; but on the appearance of 10,000 volunteers from Paris, he gave it up entirely, and, accompanied by commissioners sent by the chamber of deputies, he directed his course toward Cherbourg. There, on Aug. 16, he embarked for England with his family and a few faithful servants, on board of 2 American ships, the *Great Britain* and the *Charles Carroll*. He landed at Cowes as a private individual, under the name of comte de Ponthieu. He

immediately repaired to the palace of Holyrood, in Scotland, which had been assigned to him as a residence by the English government. In this retreat he devoted his time to field sports, of which he was still very fond, notwithstanding his old age, and to religious duties. After 4 years' residence, he left Scotland for Bohemia, where he lived successively at Buschtierad and the Hradschin of Prague; ultimately he resolved to retire to Görz in Illyria. He arrived there in Oct. 1836; but soon died of the cholera, after a sickness of 5 days.

### III. GERMANY.

CHARLES I., CHARLEMAGNE, OR CHARLES THE GREAT (Ger. *Karl der Grosse*), emperor of the West and king of France, born April 2, 742, died Jan. 28, 814, and buried at Aix la Chapelle. The 2d son of Pepin, the Frankish kingdom reverted to him and his brother Carloman, on his father's demise in 768. Carloman dying 2 years later, Charles secured the undivided sovereignty. He now found himself master of the whole of Gaul and western Germany; his ambition, however, was unsatisfied, and a succession of fortunate wars in Italy, Spain, and Germany, added largely to his already extensive dominion. His first conquest was that of Lombardy. Motives of discontent and estrangement had for several years existed between him and Desiderius, king of the Lombards. He had, before his accession to the throne, married Desiderata, the daughter of the latter, and had recently sent her back in a scornful manner to her father. Desiderius himself had granted an asylum to the nephews and some of the bitterest enemies of Charles; at the same time he assumed a hostile attitude toward the popes of Rome, whom Pepin had made firm allies of the Carolingians by bestowing upon them the exarchate of Ravenna. Charles, yielding to his own anger and to the entreaties of Pope Adrian I., crossed the Alps in 773 at the head of a powerful army, besieged Pavia for 8 months, and took possession of it only when its defenders had been disabled by pestilence and famine. Desiderius was exiled to the monastery of Corbie in France. Charles crowned himself with the ancient iron crown of the Lombard kings; but he had scarcely left Italy when Adelgis, son of Desiderius, supported by the dukes of Spoleto, Friuli, and Benevento, rose in arms against the conqueror. The rebels were crushed at once, and Charles, to make the submission of Lombardy more sure, appointed his 2d son, Pepin, to reign over this country (776). Meanwhile war was actively prosecuted against the Saxons; this was the most important, protracted, and terrific of all those waged by Charles. Commencing in 772, it terminated only in 804, after a duration of 32 years, with very little interruption. On his first expedition, Charles took Eresburg, destroyed the venerated statue known as "Irminsul," and penetrated victoriously as far as the Weser. But the Saxons were far from being conquered. In 775 Charles entered their country again at the head of his

warriors, slaughtered all who offered resistance, devastated the towns which were not prompt enough in their submission, and now considered his power firmly established. Far from it; they rose the following year, and, notwithstanding repeated defeats, renewed their resistance in 777, but in vain. Charles's power now seemed securely established. He held a *placitum* at Paderborn, where many Saxon tribes acknowledged his power and were baptized. Their intrepid chief, the hero who inspired them with his courage and love of independence, Wittikind, had been obliged to take refuge with a northern prince. Charles improved this interval of apparent tranquillity to lead his warriors against the new caliph of Cordova, Abderrahman. Crossing the Pyrénées in 778, he took Pamplona, Saragossa, and the territory as far as the Ebro; but a severe misfortune attended his return to France. The rear-guard of his army, being overtaken in the narrow passes of Roncesvalles by the Basques, the inveterate enemies of the Franks, was destroyed to the last man; and among the valiant chiefs who were slain was Roland, whom history scarcely notices, till his later renown in the annals of chivalry. But the presence of Charles was required on the Elbe; the indomitable Saxons had revolted again under Wittikind; they could not endure the foreign yoke, and, above all, they hated the attempts made to convert them to Christianity. Charles adopted against them measures of the greatest severity and cruelty; more than 4,000 prisoners were at one time slaughtered; many thousands of the Saxons were transplanted with their families into Frankish countries; part of Saxony was laid waste, and every means resorted to to crush the spirit of its unfortunate inhabitants. Two great battles, which took place at Detmold in 783, destroyed their last forces, and Wittikind, despairing of the future, surrendered in 785, swore allegiance to Charles at Attigny-sur-Seine, and was baptized. This, however, was far from being the last of these bloody struggles; the independence of Saxony found other champions, who more obscurely, but not less heroically, undertook their patriotic task. The alternate succession of risings and defeats went on almost uninterruptedly, until Saxony, being completely exhausted by repeated losses, and bent down under the despotic organization devised by Charles, had no recourse but to give up her national freedom and religion. The diffusion of the gospel was aided by conquest; the bishoprics or missionary stations of Minden, Halberstadt, Werden, Bremen, Münster, Hildesheim, Osnabrück, and Paderborn were the origin of as many cities; and the old Saxon nationality was completely broken down. While this desperate struggle was still at its height, Charles had to baffle the treacherous designs of Tassilo, the Agilolfingian duke of Bavaria, who, although a tributary of the Frankish king, held secret intercourse with his enemies, and attempted to unite the Saxons, the Lombards, the Saracens, the Avars, and the Slavonians

against Charles. The duke was arrested, arraigned as a traitor before an assembly of lords at Ingelheim in 787, and sentence of death passed upon him, which, however, was commuted by Charles to imprisonment in the monastery of Jumièges, near Rouen. Bavaria was now divided into counties under Frankish governors. Charles afterward conquered several of the Slavic tribes along the banks of the Baltic, undertook a war of extermination against the Avars, which lasted from 794 to 799, and put their country under the administration of Frankish counts and bishops. Charles, having thus taken possession of the north-east of Spain, the larger part of Italy, and northern and eastern Germany, found himself at the beginning of the 9th century master of an empire bounded N. by the Baltic sea, the Eyder, the German ocean, and the British channel; W. by the Atlantic ocean; S. by the Ebro, the Mediterranean, and the Volturno; E. by the Save, the Theiss, and the Oder. Margraviates, or military marches, were established for the protection of the land frontiers, while fleets were in readiness on the sea-shore to oppose the piratical invasions of the Saracens and the Northmen. So extensive a dominion seemed fully to warrant a higher appellation than that of king; and moreover, the ultimate aim of Charles's conquests had been the restoration of the western Roman empire. Having been induced to visit Italy to protect Leo III. against his rebellious clergy, the Frankish king was solemnly and triumphantly crowned by the grateful pontiff in St. Peter's church, on the Christmas day of the 800th year of the Christian era. Henceforth he styled himself emperor of the West, and with a view of reestablishing the ancient Roman empire, he proposed to marry Irene, the Byzantine empress; a project baffled by the deposition of Irene. This was a great era in the middle ages; the Christian kings of Spain, the Mussulmans of Fez, and the caliph of Bagdad, Haroun al Rashid, sent ambassadors to present homages and gifts to the powerful western monarch.—However great as a warrior and the founder of an empire, Charles deserves still more praise as a lawgiver, a civilizer, and a patron of learning, science, and art. He endeavored to establish order and a regular administration among the many nations which his sword had united, most of which were in a barbarous condition, totally different in their origin, language, and manners, and hostile to each other. Great national assemblies, known as *champs de Mai*, were held yearly in the spring. (See *CHAMP DE MARS*.) Other assemblies took place in the autumn, but were merely councils of military and ecclesiastical lords whose advice the emperor was pleased to receive, and who, under his directions, prepared the bills and projects to be submitted to the national meeting. In addition to the laws thus adopted by the nation, Charles issued edicts known as capitularies, in which regulations for the administration of the empire as well as

the management of the emperor's private property were enacted. The collection of these capitularies, a number of which have been preserved, is among the most valuable relics of the middle ages, and affords striking evidence of rare foresight, wisdom, and prudence in their author. His empire forming, ethnologically, various kingdoms, Charles placed at their head his own sons with the title of kings, but they were nothing more than his lieutenants, the supreme power being concentrated in his own hands, he alone appointing the officers intrusted with the administration. His whole dominion was divided into a number of counties governed by earls (*Grafen*), and these were placed under the supervision of imperial delegates, or *missi dominici*, who 4 times every year visited the circuits assigned to them, holding provincial meetings and courts of justice, receiving the accounts of the collectors of public money, and adjusting the grievances of the people. Charles was thus enabled to control every branch of administration, as well as the proceedings of the various functionaries, who were appointed for a term of 8 years only. His protection extended to the clergy, increasing their wealth by a law upon tithes, their liberty by his respect for canonical elections, and their power by certain judicial prerogatives; but at the same time keeping them under his dominion, submitting them to the *missi dominici*, restricting their rights of asylum, interfering with questions of discipline and even of dogma, and causing the monasteries to be reformed by Benedict of Aniane. Trade and industry were not less objects of his fostering care; he granted privileges to merchants, and reduced as much as possible the tolls to which they were subjected. He established uniformity of currency, had the coinage executed in his palace, and regulated the value of gold and silver coin. Beggars were not permitted to prowl about the country, but were provided for by the lords or communities to which they belonged. Charles bestowed particular attention upon general instruction and the revival of classical learning. Illustrious men were invited to his court from all parts of the world, and especially from Italy, to diffuse among his subjects various branches of learning, as grammar, rhetoric, logic, arithmetic, astronomy, history, theology, and medicine. The Anglo-Saxon Alcuin, a native of York, a man of considerable information, if not thorough learning, seems to have been the leading spirit of this aggregation of teachers; he was the originator of the Palatine school, a kind of normal institution, from which men, thoroughly instructed, were sent into the provinces, and constituting at the same time an academical society, which consisted of the emperor himself, several members of his family, mostly females, and the most distinguished of his courtiers. The academicians assumed names borrowed from antiquity; Charles himself was styled David, while 2 of his daughters, Gisèle and Rothruda, were called Delia and Columba.

These ladies and some others were also engaged in making copies of ancient manuscripts, which task, however, specially devolved upon the monks of various monasteries. Charles gave encouragement to this calling, paying largely for such copies, and establishing a library in his own palace at Aix la Chapelle. He himself was eager in his desire of knowledge and science, conversing with the learned during his leisure hours, and having books read to him during his meals. During the night he would frequently get up to study the course of the stars. Through such diligent application he became as much of a scholar as was consistent with his public duties; and some literary works were due to his encouragement, such as a German grammar, and a collection of the national songs of ancient Germany. The fine arts were far from being neglected by him; he had the Gregorian chant adopted in the churches, and brought singers from Italy, whose concerts he patronised. Among the many palaces constructed by his order, we must mention those of Ingelheim, Nimeguen, and Aix la Chapelle. The latter was a masterpiece of architecture, having been ornamented with columns and sculptural fragments brought from Italy; it was a large and magnificent building, the spacious halls and rooms of which were decorated in a splendid manner, and filled with most elegant and costly furniture. The basilica in the same city, erected also by Charles, was equally celebrated, and became the pattern of many churches built during the 9th century. He moreover encouraged civil engineering; a wooden bridge, 500 paces long, was constructed at Mentz over the Rhine; and a gigantic canal was commenced, but not completed, to establish through this river and the Danube a water communication between the German ocean and the Black sea. As a man, Charles, according to Eginhard, was of a tall and commanding figure; either standing or sitting, he had an air of grandeur and dignity; and notwithstanding the shortness of his neck and his obesity, he was well proportioned and remarkably active, with a firm step and manly appearance, his shrill voice alone being not in accordance with his person. \*A perfect adept in the use of weapons, he was also an unrivalled swimmer and a consummate hunter. Although encouraging magnificence of attire among his courtiers, he was generally plainly dressed, giving preference to the old Frankish style of costume. He was frugal and temperate, and evinced great severity against drunkards. He had 9 more or less legitimate wives, by whom he had at least 20 children. The only son who survived him was his successor, Louis le Débonnaire. Several among his many daughters led a dissolute life and caused great scandal, which their father and afterward their brother were unable to suppress. The awe with which Charles inspired his contemporaries increased as time rolled on; his historical deeds, amplified and adorned by poetry, powerfully seized upon the popular imagination; and

the great emperor and his 12 legendary peers became the heroes of innumerable chivalric romances, which were recited or sung every where, and the collection of which is now styled the "Carlovingian Cycle." His name has also won a halo of sanctity, the anti-pope Pascal III. having canonized him in 1165, and Louis XI. having ordered his anniversary to be celebrated on Jan. 28. The origin of many pious or learned institutions has been ascribed to him; and fiction and truth are so much blended in his history that it is difficult to disentangle the one from the other. But, however this may be, Charlemagne takes his rank among those extraordinary men who, from time to time, appear to change the face of the world and inaugurate a new era in the destinies of mankind.—The literary works attributed to Charlemagne are: 1, his "Capitularies" (first collected by Ansegise, abbot of St. Wandrille, best edition that of Étienne Baluze, Paris, 1677, 2 vols. folio); 2, "Letters" contained in the collection of De Bouquet; 3, a "Grammar," of which fragments are to be found in the Polygraphia of Trithemius; 4, his "Testament," contained in Bouchel's *Bibliothèque du droit François*, tom. iii., printed at Paris, 1667, folio; 5, some Latin poems, such as the "Epitaph of Pope Adrian," and the "Song of Roland;" 6, the Caroline books.—The cathedral of Aix la Chapelle stands on the site where Charlemagne had erected a chapel, which he designed as his burial-place. The chapel was destroyed by the Normans, and rebuilt in its present form by Otho III. toward the close of the 10th century. The position of the tomb, in which once reposed the remains of Charlemagne, is marked by a slab of marble under the centre of the dome, inscribed with the words *Carolo Magno*. When the vault was opened, the body of Charlemagne was found seated on his throne, clothed in the imperial robes. These relics are now deposited in Vienna, excepting the throne, which alone remains in the cathedral of Aix la Chapelle. Among the books which treat of Charlemagne we may refer to the great biography of his contemporary, Eginhard, *Vita Caroli Magni*, in Duchesne's *Rerum Francorum Scriptores* (the best edition is that by Pertz, in the *Monumenta Germaniæ Historica*, 2 vols., also by Ideler, Hamburg, 1839, 2 vols.; an excellent German translation appeared in Berlin in 1850); Monachus Sagallensis, *De Gestis Caroli Magni*, libri ii.; Donatus Acciaiolus, *De Vita Caroli Magni Commentariis*; Leclerc de la Bruère, *Histoire du règne de Charlemagne*; B. Hauréau, *Charlemagne et sa cour*; Struve's *Rerum Germanicarum Scriptores*, tom. i.; Dippold's *Leben Kaiser Karls des Grossen* (Tübingen, 1810); Gaillard's *Histoire de Charlemagne* (2d edition, Paris, 1819, 4 vols.); Lorenz, *Karl's des Grossen Privat- und Hofleben*, in Raumer's *Historisches Taschenbuch* (1832); Capefigue's *Charlemagne* (3 vols. Paris, 1840); Sporschill's *Karl der Grosse* (Darmstadt, 1845). Dr. F. Piper has recently edited from the original MS. *Karl des*

*Grossen Kalendarium und Ostertafel* (Berlin, 1858). Among the more popular works upon this monarch may be mentioned the "History of Charlemagne," by G. P. R. James (1832).

CHARLES THE FAT, or *le Gros*, the last emperor of the Carlovingian dynasty, born about 832, died in 888. He was the 3d son of Louis the Germanic, and received the kingdom of Swabia for his portion of his father's possessions. After the death of his oldest brother, Carloman of Bavaria, he succeeded him in the imperial dignity and in the possession of Italy (881), and after that of his younger brother, Louis of Saxony (Jan. 20, 883), he became king of all Germany. On the death of Carloman of France in 884, Charles the Fat united France under his sceptre with Germany and Italy, and the vast empire of Charlemagne was thus again vested in one and the same sovereign. He proved, however, utterly unworthy of this exalted position. "Charles the Fat upon the throne of Charles the Great," says a German historian, "was a caricature of weakness and contempt; this master of nations, harassed, humiliated by every foreign and internal enemy, a passive tool in the hand of his minister, an inactive spectator of the sufferings of his people, was covered with domestic as well as public disgrace." His incapacity and cowardice soon became manifest. The city of Paris being besieged by the Northmen, he marched against them with a large army from Germany; but instead of fighting the enemy, he offered them large sums of money and the pillage of Burgundy to obtain their retreat. This shameful conduct raised general indignation; the Bavarians, Saxons, Thuringians, and finally the Alemanni, deserted him and deposed him solemnly in an assembly at Trebur in 887. He had already been disowned by the French. He died the next year, poor and forsaken, in a cloister near Constance. He was noted for his inordinate love of the pleasures of the table, and this as well as his natural corpulency gave him the surname of "the Fat."

CHARLES IV., emperor of Germany, the son of John, king of Bohemia, who fell in the last battle of Crécy, born in Prague, May 13, 1816, died Nov. 29, 1878. Several years before the death of Louis of Bavaria, the emperor being under excommunication of the pope, the king of Bohemia had been chosen in his stead. But Louis, partly by the great superiority of his talents, partly by the support given to him by the princes of the empire, who were especially jealous of the papal power, and had within 10 years adopted at the diet of Rense the most energetic measures against the claims of the holy see, easily conquered the blind Bohemian, who threw himself thenceforth almost entirely into the hands of the pope and of the French king. He was of the family of Luxemburg, and so allied to the royal house of France; and consequently he caused his son, who was a man of some considerable ability, though of a cold, politic,



fawning, and treacherous disposition, to be educated in that kingdom, and to be brought up as much as possible a Frenchman. So far as his interests led him in that direction, Charles of Luxemburg, as he was called, was willing to be German, French, or for that matter, English. Nevertheless, he had not the slightest idea of sacrificing his own life or that of his people in behalf of a king who would never adequately reward his services. Therefore, so soon as he saw that the English archery had in fact won the day, and that the English king was pressing the broken troops of France so hard as showed that there would be no second battle, by which to redeem a victory already lost, Charles of Luxemburg took himself off the field, and left his gallant father and a handful of brave countrymen to die, the former because he would not outlive his honor, the latter because they would not survive their king. By this event, Charles succeeded to the throne of Bohemia, and having been chosen emperor by 5 electors (July 19, 1346), hoped to succeed without opposition, when Louis died, a little more than a year afterward. The electors of Brandenburg and the Palatinate, the archbishop of Mentz, and the duke of Saxe-Lauenburg, assembled at Lahnstein, declared the choice which had fallen upon Charles IV. void, and proceeded to elect in his place Edward III. of England, the conqueror of Crécy, and brother-in-law of the late emperor. But the English parliament obliged him to decline the proffered dignity. Equally fruitless was their election of Frederic the Severe, landgrave of Meissen, who likewise refused the crown. Twice disappointed, they now elected Günther von Schwarzburg, a knight distinguished by his feats of arms, in whose favor they gained over the Poles, those ancient enemies of the house of Luxemburg; and for a time the prospects of Charles seemed to be at the lowest. He set himself, however, to accomplish by underhand intrigue the same ends in secret which the failure of the Hohenstauffen, of his grandfather Henry, and of Louis of Bavaria, clearly proved to him the impossibility of effecting by open violence. He was the first of the emperors who introduced that foreign policy against which his predecessors on the throne had so manfully but unsuccessfully striven. The Hapsburgs had made some weak attempts of a similar nature, but it was not until this reign that modern policy took deep root in Germany. He poisoned German policy with every hypocritical art, by the practice of courtly treachery and secret murder, in which he had become an adept in France. Primogeniture, first introduced by him into his family, passed into that of the Hapsburgs, and at all events promoted the dismemberment of the empire, whose external power was thereby increased, notwithstanding the moral paralysis of its effect. He craftily entered at this juncture into negotiation with Edward, to whom he proved the necessity of an alliance between them against France; drew

the Hapsburg army on his side by giving his daughter Catharine in marriage to Rudolf, the son of Albert the Lame; and with equal skill dissolved the Wittelsbach confederacy by wedding Anna, the daughter of the count palatine Rupert, by ceding Brandenburg to Louis the Elder, and declaring Waldemar, whom he had himself invested with the electorate, an impostor. Louis the Elder, with equal perfidy, sacrificed Günther, who was shortly afterward, in 1347, poisoned by one of the emissaries of Charles. Those who surrounded the deathbed of Günther in his last moments extorted from him an abdication, for which they were munificently paid by Charles. He now stood alone at the head of the house of Luxemburg. He dissolved the alliance between the pope and France, and prevailed upon the pope to quit Avignon, and to cast himself again upon the protection of the German empire. His views with regard to Italy did not extend to reattaching it to the empire, but only to procuring the ceremony of his coronation at Rome. Succeeding also in this, he visited Rome in a private capacity; took no heed of the Italian factions, except to foment discords between them; betrayed Rienzi, who trusted himself confidently in his power, and sent him in chains to the pope; flattered Petrarch, who implored him, as Dante had previously implored Henry VII., to restore Italy to the empire, with fair and false words; and, in a word, by his conduct so disgusted the Ghibellines, who had hoped by his means to strengthen their party, that they set fire to the house which he inhabited at Pisa, and he narrowly escaped with his life. At Rome he was received with the greatest distinction by the papal legate, and on the day after the coronation (1355) withdrew from the city, in obedience to secret orders received from the pope, in order to avoid being proclaimed temporal sovereign. Ten years later, his policy was completely rewarded by his success in detaching Pope Urban V., the successor of Clement, from the French alliance. Two years later, again, when that prelate reentered Rome, he was visited by Charles, whom he met at Viterbo, and to whom he vouchsafed the honor of conducting him to St. Peter's, leading the horse he rode by the bridle as he walked at its side. Next he applied himself to the reintegration of the empire, by getting the whole control and constitution of the electoral college into the power of himself and of the future emperors *de facto*; and this he in a great measure accomplished by the promulgation of the celebrated golden bull at the diet of Nuremberg in 1356, which continued to be a fundamental law of Germany until the dissolution of the empire. This was the most important achievement of his reign. At a later day, the corruptions and feuds which he had diffused and encouraged broke out on all sides throughout the empire; the league of the cities were at war with the nobles; the country was devastated by bands of robbers, and all seemed on the verge

of chaos; but it was not his policy, base and crooked as that had been, which created the disturbances, but the general ferment of the universal mind of the people, which was every where, but especially in Germany, beginning to seethe and boil with new ideas of political and ecclesiastical reform, and which would not be settled until after many a year of turbulence, commotion, and war. By his diplomacy he raised not only the power of his own family but that of the empire, and thus succeeded by intrigue and cunning where the Hohenstauffen with all their valor and magnanimity had failed. His domestic and internal policy was, it must be admitted, wise, liberal, and beneficial. He bestowed new codes of laws, in the main just and advantageous, on Bohemia, Moravia, and Silesia. He conferred privileges on the aristocracy and on the cities, encouraged agriculture and mining, promoted internal navigation, introduced German artificers into Bohemia, converted the whole of that country into a smiling garden, beautified the capital with fine public edifices and stately buildings, patronized learning and the fine arts, founded universities, and generally promoted the progress of education and the well-being of his people. Altogether, he was a strange anomaly. As a man, and especially as a politician, he must be pronounced odious; yet as a ruler he is not without claims to consideration and even to respect. "Charles," says Menzel, whose account of his reign is singularly able and discriminating, "was named—falsely, for he did more for the empire than any emperor since the Hohenstauffen—the stepfather of the empire, but the father of Bohemia. His person discovered his Bohemian descent, his resemblance to his mother being stronger than to his father. He was diminutive in stature, but thick-set, carried his head ill and drooping forward, had high cheek bones and coal-black hair. His Slavic appearance curiously contrasted with his sumptuous attire, for he seldom laid aside the imperial crown and mantle, and his French manners and education. He spoke 5 languages, and was deeply versed in all the learning of his time. Part of his biography written by himself is still extant. He also drew out the plan for the new part of the cities of Prague and Breslau." He bequeathed the kingdoms of Bohemia and Silesia to his eldest son, Wenceslaus; to Sigismund, the 2d, the electorate of Brandenburg; and to the 3d, Lusatia. Among the works referring to Charles IV. may be mentioned Pelzel's *Geschichte Kaiser Karl's IV.* (Prague, 1780-'82), and Dönnige's *Geschichte des Deutschen Kaiserthums im 14. Jahrhundert* (Berlin, 1841).

CHARLES V., emperor of Germany, and king of Spain under the title of Charles I., born in Ghent, Feb. 24, 1500, died at the monastery of Yuste, near Plasencia in Estremadura, Spain, Sept. 21, 1558. He was son of Philip of Burgundy, archduke of Austria, and Joanna, the daughter of Ferdinand and Isabella

of Spain. His father was son of the emperor Maximilian, and the beautiful Mary, daughter of Charles the Bold and Isabella of Bourbon. By the death of his father Philip, he became in 1506, when only 6 years old, heir presumptive to the entire possessions of the house of Hapsburg in Germany, in right of his paternal grandfather, Maximilian, and to the splendid sovereignty, or dukedom, as it was called, of Burgundy, afterward the Spanish Netherlands, in right of his paternal grandmother, Mary. By the death of Ferdinand the Catholic, his maternal grandfather, in 1516, he inherited the kingdom of Spain, now one and undivided, the kingdom of Naples, and all the boundless empire of Spain in America, beyond the western ocean. It was his boast that the sun never set on his dominions; he bore 3 globes on his escutcheon, and on his coin 2 pillars, those of Hercules, the boundaries of the old world, with the motto *Plus ultra*, or "more beyond." He was, on his arrival at the age of manhood, the mightiest, the wealthiest, in every respect the most powerful prince in the world. In extent of territories, in number and quality of populations, whence to draw unlimited supplies of the best soldiers in Europe, in revenues, and treasures of gold and silver, in maritime resources and abilities, no one could so much as aspire to compete with him. He was educated in the Netherlands, under the care of William Croy, lord of Chièvres, who had him thoroughly instructed in military exercises, in history, and in those business habits which are essential to the conduct of affairs of state; he brought him up stern, cold, regular in his life, grave, formal, and dignified in his manners; but he made him solely and entirely a German, and this was a disadvantage to him in his after life, as he never gained the sympathies of his Spanish subjects. From the moment of his accession to the throne of Spain, Charles had set his ambition on the imperial crown, which had been so long the property of his grandfather Maximilian, but he had at the same time the ability to perceive, that to pretend to the succession at this time would be to array against himself the jealousy of all the other potentates of Europe, and the prudence to avoid a premature disclosure of his object. His motto was *nondum* (not yet), but he nevertheless awaited his time only, and made the surer of his object by his seeming neglect of it. In the mean time, Martin Luther had shaken the church to its base. On the death of Maximilian, Frederick of Saxony, the friend and protector of the bold reformer, became regent of the empire. When the imperial election came on, Francis I. of France, who was the most dangerous competitor of Charles, was rejected on the ground of his not being a German, though it was believed at the time that his partisans were induced by golden arguments to desert his cause. Henry VIII. had, it appears, for a short time, entertained a hope of attaining the imperial dignity; but so soon as he was assured that he was too late in the field, he directed the whole weight of his in-

fluence to be thrown into the scale in favor of the Spanish monarch. Charles was eventually elected emperor, June 28, 1519, and taking leave of his Spanish subjects, whom he disliked, and with whom he was not popular, proceeded to Worms, where a great diet was convoked of all the estates and princes of the empire, to receive the emperor, regulate the affairs of the empire, and decide the Lutheran controversy. The last was really the great and determining question of the day. But Charles lacked the foresight to discover its paramount importance. In view of the pretensions of his rival Francis, and his military preparations against Italy, it appeared to the emperor to be of all things the most essential to preserve the unity of the German empire, free from dissension. The efforts of Charles were necessarily directed by the course of events to the repression of the attempts of Francis I. against Italy; and he had need of all his power and ability to effect that end, and to prevent or frustrate the constant and formidable coalitions which were made against him, so often as he appeared to be gaining any decisive advantage over his impetuous and impulsive rival. Thus, after the tremendous battle of Pavia, in which, by the consummate generalship of Charles of Bourbon, the arms of the empire triumphed over those of France, while Francis himself was made prisoner on the field, he was reduced to the necessity of making peace and releasing his captive on conditions, to the observance of which the latter swore the Gospels previous to his liberation, but which, so soon as he was free, he repudiated, by the union of the pope, the king of England, the French, the Venetians, and all the Italian princes. A second time, when the French again invaded Italy and were again defeated, near Pavia, the emperor again consented to a peace, which is known as the "ladies' peace," having been negotiated by the mother of Francis and the aunt of Charles, Margaret, the princess regent of the Netherlands. Shortly after this reconciliation, the war of the peasants and the nobility being suppressed, and the moderate councils and doctrines of Luther continuing to prevail, the Catholic princes entered into a closer league of interest with the emperor at the diet of Spire, and endeavored to prevent the further progress of the new doctrines by a decree that the church should remain *in statu quo* until the convocation of a council. This step led to the celebrated protest of the Lutheran princes, whence the name of Protestants, April 19, 1529. The necessity of concentrating his forces against the Turks, who were besieging Vienna and had laid waste all the country as far as Ratisbon, added to the admitted impossibility of crushing the Lutheran party, except by open recourse to arms, led Charles, in accordance with the views of the pope, to limit his efforts to the promotion of dissensions among the princes. But on the retreat of the Turks, the subject was again taken up at Augsburg, when a religious war appeared inevit-

able, until a new invasion of Solyman the Magnificent, who thought to profit by the dissensions of Germany, and place himself on the throne of the western, as he already possessed that of the eastern empire, produced a fresh cessation of strife. Scarce had that war, however, closed by a temporary and uncertain peace, before the internal dissensions and commotions recommenced. Zwingli was killed at Albis, where his party suffered a total defeat; Geneva embraced the doctrines of Calvin; terrible commotions followed, the contentions of the Hanse towns after the dissolution of the union of Sweden, Denmark, and Norway, being superadded to the persecution of the Anabaptists in the Netherlands, and to their insurrection and ultimate suppression in Münster. The council of Trent, the death of Luther, and the war resulting from the confederation of the Smalkald princes, followed in quick succession; and then, France being humbled in new wars, England to a certain degree gained over, and the sultan pacified by the cession of part of Hungary, the pope and the emperor turned their united forces, aided by the new Spanish order of the Jesuits, to the suppression of the heresy. All was, however, ineffectual. The warfare was conducted on the Protestant side chiefly by Maurice of Saxony and Albert von Culmbach, surnamed "the Wild." At length, a furious battle at Sievershausen between Maurice and Albert, the latter being now under the ban of the empire, and acting as a mere depredator, opposed to all his ancient comrades in arms, brought the contest to a close for a while, by means of a religious peace, concluded at Augsburg in 1555, and known as the false peace of Augsburg.—Charles now determined to fulfil his long cherished purpose of abdicating his numerous crowns, and giving the succession to his son Philip, to whom he would also have resigned the empire had not the Spanish education of that prince, and his gloomy and bigoted character, inspired the Germans with an aversion as unconquerable as that with which he regarded them. At Brussels, Oct. 25, 1555, in a splendid assembly and with a pompous ceremonial, he surrendered all his territories and authority in the Netherlands to his son; and in the succeeding month of January (according to the chief authorities), the transfer of the crowns of Spain, with all the territories depending on them, both in the old and in the new world, was accomplished in a quiet manner. He retired soon after to the Hieronymite monastery of Yuste, in Spain, where he passed the remaining years of his life. Not since Diocletian had there been a similar instance of an imperial abdication, and the philosophical and religious solitude of Charles became a favorite theme of romantic historians. The fascinating but fanciful sketch of Strada had been imitated by authors of every country, prior to the recent discovery of the original letters of the emperor and his household. By these it is proved that, far from being immersed in profound and pious contemplation, he was

never more intently occupied with the course of contemporary affairs; that instead of attaining to generosity of sentiment or loftiness of thought, he increased only in severity and intolerance, and bitterly regretted that he should have allowed the escape of Luther; and that instead of triumphing over an appetite which had always been ungovernable, he shocked his physician by the immense supplies of partridges, capons, sirups, pies, sausages, omelettes, and flagons of wine, which were constantly ordered for his table. Politics and gastronomy were the subjects of almost every letter which proceeded from the imperial hermitage. Though he had a passion for horology, there is no evidence, according to Mr. Prescott, that he ever made the philosophical reflection concerning the absurdity of attempting to produce uniformity of faith among men, since he could not make any two of his timepieces agree. He suffered severely from the gout, and, among other eccentricities, is said to have had his own funeral obsequies performed in the chapel of the monastery a short time before he was attacked by the malignant fever which caused his death. Menzel has summed up his character in the following sentences, which may be deemed impartial, although perhaps not enough allowance is made for honest religious scruples, from which it is hardly just to assume that Charles was wholly free, and for natural predilections in favor of the faith in which he had been brought up: "Charles, although dexterous in the conduct of petty intrigues, was entirely devoid of depth of intellect, and even misunderstood his age; magnanimous in some few instances, he was unendowed with the greatness of character that had empowered Charlemagne to govern and to guide his times. Possessed of far greater power than that magnificent emperor, the half of the globe his by inheritance, he might, during the 30 years of his reign, have moulded the great reformation to his will; notwithstanding which, he left at his death both the church and the state in far more wretched disorder than at his accession to the throne of Germany. Frederic II. was too dull of intellect to rule a world; Charles V. was too cunning. He overlooked great natural advantages, and buried himself in petty intrigue. Luther remarked of him, during his youth: 'He will never succeed, for he has openly rejected truth, and Germany will be implicated in his want of success.' Time proved the truth of this opinion. The insufficiency of the reformation was mainly due to this emperor. Ferdinand I. opposed in his hereditary provinces by a predominating Protestant party, which he was compelled to tolerate, was politically overbalanced by his nephew Philip II. in Spain and Italy, where Catholicism flourished. The preponderance of the Spanish over the Austrian branch of the house of Hapsburg exercised the most pernicious influence on the whole of Germany, by securing to the Catholics a support which rendered reconciliation impossible; to

the Spaniards and Italians, admittance into Germany; and by falsifying the German language, dress, and manners. The religious disputes and petty egotism of several estates of the empire had utterly stifled every sentiment of patriotism, and not a dissentient voice was raised against the will of Charles V., which bestowed the Netherlands, one of the finest provinces of Germany, upon Spain, the division and consequent weakening of the powerful house of Hapsburg being regarded by the princes with delight." By his wife Isabella, daughter of King Emanuel of Portugal, he had one son, the future Philip II. of Spain, and 2 daughters. He was succeeded as emperor by his brother Ferdinand I.—Among the works treating specially of Charles V. the most important are Antonio de Vera's *Vida y hechos de Carlos V.*; Prudencio de Sandoval's *Historia de la vida y hechos del emperador Carlos V.*; Robertson's "History of the Reign of the Emperor Charles V." (London, 1769; German translation by Mittelstedt with comments by Remer, Brunswick, 1795); Lanz's *Correspondenz des Kaisers Karl V.* (Leipzig, 1844-'46); and Charles's instructions to his son Philip II., translated into French by Teissier (the Hague, 1700). The MS. of a description of the capture of Tunis, in the handwriting of Charles, dated Tunis, July 23, 1535, and addressed by him to his sister Mary, regent of the Netherlands, has been discovered by M. Gachard, keeper of the Belgian archives. For the life of Charles V. after his retirement, the best original authorities are MSS. in the archives of Simancas. Upon these are chiefly founded the Gonzalez MS.; the *Chronique de Charles Quint*, by Pichot, Paris, 1854; the *Retraite et mort de Charles Quint*, by Gachard; Mignet's *Charles Quint*, &c.; Stirling's "Cloister Life of the Emperor Charles V.," and Prescott's appendix to the Boston edition of Robertson's history of the reign (Boston, 1856).

CHARLES VI., 2d son of the emperor Leopold I. of Germany, and Margareta Theresa of Spain, born Oct. 1, 1685, died Oct. 20, 1740. He was educated from his childhood with a view to the Spanish throne, to which, on the death of Charles II., the last Spanish king of the house of Hapsburg, he was entitled. But Charles II., dying without heirs male, in defiance of the Austrian right, left his throne by will to Philip, duke of Anjou, second grandson of Louis XIV. of France; and on the death of the Spanish monarch, in 1700, Philip took possession of the kingdom. A war ensued, in which most European powers took part, and which is known as that of the Spanish succession. In 1708 Charles was proclaimed king of Spain, in Vienna, under the name of Charles III. With the assistance of England and Holland he eventually, June 28, 1706, was proclaimed king also in Madrid, but obstinately declined being crowned, because he had not the regal outfit which he thought requisite to support his dignity. This proved fatal to Charles. The French having had time to receive reinforcements, and

obtain an abler general, in the person of the duke of Berwick, natural son of James II., and nephew on his mother's side of the great English captain, defeated the allies in the battle of Almanza, which recovered for Philip the whole of Valencia, and ultimately restored to him the crown, which he had once lost had his enemy taken the occasion to assume it. In 1708 and 1709, the war languished in Spain, Charles being shut up in Barcelona, which was gallantly defended by a small garrison of 2,000 men, until it was relieved by an English fleet; but the great successes of the allies in the Netherlands inclined the French, exhausted by continual reverses, to sue for peace. Spain would have been abandoned, even, had not the German cabinets insisted on the expulsion of Philip by the arms of his own uncle, Louis XIV. In consequence of this, the war continued. In 1710, the allies in Spain being reinforced, the Germans and the English gained a signal victory at Saragossa; Philip was again driven from Madrid, and Charles, when it was too late, entered it, amid the mournful and ominous silence of the people, who had been taught to regard him as the tool of the English heretics, and were excited against him by the influence of the pope, the clergy, and the Jesuits. France sent powerful reinforcements, and her best general, Vendôme, and the English commander Stanhope suffering himself to be surprised and made prisoner at Brihuega, Charles was once more shut up in Barcelona, to which thenceforth his kingdom was limited. Joseph I., emperor of Germany, dying without issue in 1711, Charles, at the suggestion of Eugene, was elected emperor, and recalled to Germany, where he was crowned at Frankfurt-on-the-Main in December of the same year, and one year later king of Hungary, at Presburg. His wife, Elizabeth of Wolfenbüttel, and Count Stahrenberg, remained two years longer in Barcelona, in a fruitless attempt to retain the kingdom; but they were forced to withdraw, and Catalonia fell a prey to a cruel vengeance. In England the tories came into power, who had always sided with France, on account of the support it gave the Stuarts, whom they still hoped to see restored. Marlborough was replaced by Ormond, who was secretly ordered to retreat, abandoning the Dutch under Albemarle to defeat, and obliging Eugene to retire from his position at Quesnoy. This was followed by the peace of Utrecht, concluded in 1713, between France and England, by which England retained Gibraltar, Minorca, and St. Christopher's, obtained the demolition of the fortresses of Dunkirk, and the right of free trade with the Spanish colonies, in consequence of which she guaranteed to Philip the possession of the throne of Spain. Holland shortly afterward acceded to the peace. The German empire, though abandoned by England and Holland, could still have compelled France to listen to reason, had it been possible for her various governments to act in concert. Eugene was forced

to negotiate with Villars; but so insolent were the French in their demands, that the prince left Rastadt, where the conferences were held, on his own responsibility, and Louis XIV. yielded, fearful that persistence might awaken even Germany from her stupor. The treaty of Utrecht was recognized. Philip retained Spain, England Gibraltar. Charles VI. retained all the Spanish possessions in Italy, Naples, Milan, Sardinia, the Netherlands, and the fortresses of Kehl, Freiburg, and Breisach, and the territory west of the Rhine which had formerly belonged to France, for which that power received Landau in exchange. In the following year, Sardinia was given by Austria to the duke of Savoy, in exchange for Sicily, and that prince took the title of king of Sardinia. Charles VI., being the last heir male of the house of Hapsburg, gave his whole attention to preserve the inheritance of all the crowns which he held to his daughter Maria Theresa of Austria, whose hand he had given to Francis of Lorraine; an end which he hoped to attain by what is known in history as the pragmatic sanction, a compact or guarantee, procured at immense cost, of all the nations. Spain's consent was purchased by the cession of Tuscany, Parma, and Piacenza; France was conciliated by the promise of Lorraine; England and Holland by the abolition of the commercial society of Ostend; and Augustus, of Saxony and Poland, by the assurance of the succession of the crown of Poland to his son Augustus III. The latter assurance speedily involved Europe in a fresh war. On the death of Augustus II., the Poles proceeded to hold a reelection, for which Stanislas Leszczyński again offered himself as a candidate, and, although he was not much favored by the nobility of Poland, Charles held steadily to his engagement. The exertion of his influence, united to the active intervention of Anne of Courland, the niece of Peter the Great, who had governed Russia since 1730, and who had already mooted to the emperor and to Prussia the scheme for the partition of Poland, secured the crown to Augustus. Anne sent Marshal Münnich, at the head of 40,000 Russians, into Poland, expelled Maurice the Strong (Marshal Saxe) from Courland, of which he had been elected duke, and conferred that dignity on her paramour Biron, whom she had elevated from the lowest position, he being in fact only the son of an ostler. Stanislas was forced to fly from his dominion, and in consequence France, Spain, and Sardinia declared war, not on Augustus or on Russia, but on the empire, evidently with no object but that of plundering that power. The Russians sent 80,000 men to assist the emperor; England and Holland remained neutral; and Prince Eugene, owing to the death of his able antagonist, the marshal duke of Berwick, was enabled to maintain himself on the Rhine. Every where else, however, the imperialists suffered severe losses. Villars gained a great victory near Parma, in which Mercy, the imperial general, was

alain; and although his successor Königsegg surprised the allied camp on the Secobia, capturing 570 guns, the fate of the campaign went against the empire, while Don Carlos of Spain succeeded in making himself master of the kingdom of Naples. These successes were not, however, turned to the advantage of France to the extent that might have been expected. Louis XV., steeped in licentious dissipation, cared little for conquest or glory, so long as he could enjoy undisturbed the pleasures of his harem, and a truce was concluded, by which the former stipulations of the emperor were accepted. Don Carlos retained Naples; Parma and Tuscany were given to Lorraine, the sovereignty of which was bestowed on Stanislas Leszczynski, 1736, with the reversion to France on his death, which occurred in 1760, when Lorraine became French. During the remainder of his reign, the emperor was constantly engaged in wars with the Turks, from whom he vainly fancied he should be enabled to make conquests, which might counterbalance his losses in the west of Europe. But on the death of Prince Eugene, the army which he had created fell into a state of total demoralization. The house of Hapsburg became extinct in the direct line by the death of Charles, which happened while he was busily employed in reorganizing the financial system of his empire, which was in a terribly distracted condition, and in arranging the last details of the pragmatic sanction by procuring the election of his son-in-law, the duke of Tuscany, husband of the beautiful and high-spirited Maria Theresa, as king of the Romans. After his death, the pragmatic sanction immediately dissolved itself, as by common consent of all parties, not one of the contracting powers abiding by the guarantees which Charles had purchased at so dear a rate; and it was only by the courage and abilities of his daughter that the hereditary possessions of the house of Hapsburg were preserved and transmitted without dismemberment.

**CHARLES VII. (KARL ALBRECHT)**, emperor of Germany, born in Brussels, Aug. 6, 1697, died in Munich, Jan. 20, 1745. His father was Maximilian Emanuel, elector of Bavaria, and governor of the Spanish Netherlands. Joseph I., having taken possession of the elector's possessions in Bavaria, outlawed him, and detained his son as prisoner at Klagenfurth and Göritz, where the young prince, however, enjoyed every advantage of education. Liberated in 1714, after the conclusion of the treaty of peace of Rastadt, Charles Albert was sent as commander of the troops against Turkey in 1716-'18. In 1723 he married a daughter of Joseph I., having previously renounced all rights arising from this marriage to the empire of Austria, and adhered to the pragmatic sanction. Four years afterward he succeeded his father as elector of Bavaria. His first act now was to protest against the pragmatic sanction, and after the death of Charles VI. in 1740, he put forth his claims to the Austrian succession, which had already

been urged by his father, immediately on the accession of Maria Theresa. In order to insure his claims, he concluded at Nymphenburg an alliance with France and Spain, May 18, 1741. With the assistance of French troops he captured Lintz, where he was proclaimed archduke of Austria, and afterward took possession of Prague. Elected king of Bohemia, and soon afterward German emperor, he proceeded to Frankfort-on-the-Main, where, Feb. 21, 1742, he was crowned emperor of Germany by his brother, the elector of Cologne. The Hungarians, however, rose in favor of Maria Theresa, whose army occupied Munich, reconquered upper Austria and Bohemia, and compelled Charles to resort to flight. The efforts of his general, Seckendorf, enabled him to return to Munich, April 19, 1743; but in June he was again expelled by the victories of Maria Theresa's troops. About the same time his allies, the French, were defeated near Dettingen by the English allies of the Austrian empress, and Charles would never have regained possession of his capital but for his alliance with Frederic of Prussia (May 22, 1744), who invaded Bohemia, and for the exploits of Seckendorf. But prostrated by adversity, he died soon after his reentrance into Munich. He was a weak man, wholly incapable of the part which he aspired to play.

#### IV. NAPLES.

**CHARLES D'ANJOU**, king of Naples and Sicily, count of Anjou and Provence, born about 1220, died in 1285. He was the youngest brother of Louis IX. of France, and married Beatrix, the heiress of Provence, thus becoming related to Henry III. of England and Richard of Cornwall, the king elect of Germany, who had married the 2 eldest sisters of Beatrix. He accompanied his brother in his first crusade, landing with him in Egypt in 1249, and being taken with him a prisoner by the Saracens. On his liberation he came back to Provence, where he had first to reestablish his authority in some of the large cities. He greatly assisted his mother, Blanche of Castile, in her regency during the king's absence in Palestine. On the death of the emperor Conrad IV. the kingdom of the Two Sicilies was offered to him by Pope Urban IV., in defiance of the rights of the Hohenstauffen. Crowned at Rome, he marched against Manfred, the natural brother of Conrad IV., who had been proclaimed king by the Sicilians. At Grandella, near Benevento, he won a great battle in 1266. Here his rival was slain, and he assumed at once over the reluctant Italians a power which he maintained by unmitigated severity. The numerous adherents of the Hohenstauffen, aware of the popular feeling, invited young Conradin, son of Conrad, to Italy. This brave prince, then scarcely 16 years old, entered his hereditary states, where he was enthusiastically received. Every thing seemed to promise him victory; his army was numerous and full of confidence; but the crafty Charles, with forces comparatively small, succeeded in defeating his young oppo-

nent in 1268, at the battle of Tagliacozzo, and making him his prisoner. He subsequently had him executed on the principal square of Naples, after going through the mockery of a trial. The friends and adherents of the prince were also unmercifully dealt with, and the unpopularity of the conqueror was still further increased by the insolence of his French soldiery. In 1270 Charles sailed for Tunisia, to join his brother Louis IX. in his 2d crusade. On his arrival he found Louis dead; he succeeded, however, in compelling the bey of Tunis to acknowledge himself his tributary. On his return he planned the conquest of the eastern empire, but his schemes were baffled by the insurrection commonly called the "Sicilian vespers." This dreadful event, which had been brought about by Charles's tyranny, took place March 30, 1282. Sicily placed itself under the protection of Don Pedro of Aragon, and Charles tried in vain to reconquer the island. He was overpowered by the superior cunning of Pedro and the prowess of the admiral Roger dell' Oria. During this hard contest, it was proposed that a duel should take place at Bordeaux between the 2 princes, a proposal eagerly accepted by Charles, although he was already 60 years old; but the offer was only made by Pedro to gain time, and the Aragonese did not appear on the appointed day. Charles repaired in haste to Italy, hoping to take revenge on the battlefield; but on arriving at Gaëta, he learned that his son had been defeated and taken prisoner in a naval engagement with the Aragonese admiral. This misfortune preyed heavily upon his mind; the inflexible warrior now became as wavering as he had been resolute. His death soon followed. He was succeeded by his son, Charles II., called the Lama, who began to reign in 1289, after his liberation from prison. He also tried in vain to reconquer Sicily. He died in 1309.

#### V. SARDINIA.

CHARLES ALBERT (CARLO ALBERTO AMADEO), king of Sardinia, born Oct. 2, 1798, died at Oporto, July 28, 1849. The son of Charles Emanuel of Savoy-Carignan, of a younger branch of the royal family, and having consequently no hope of ever obtaining the crown except by the extinction of the direct line, he early adopted liberal principles, and was even affiliated with the carbonari. Being appointed regent, March 18, 1831, on the abdication of King Victor Emanuel, he did not hesitate to proclaim in Sardinia the constitution adopted by the cortes of Spain and to appoint a provisional junta; but his plans were immediately baffled by the marching of an Austrian army into Piedmont, and the rejection by King Charles Felix of all his measures. He then withdrew from Turin, resigned his office, and left the kingdom. In 1823, he served as a volunteer in the French army which, under the duke of Angoulême, invaded Spain, to crush the liberal party; he was consequently charged with perfidy by his old friends. In 1824, he was allowed to

return to Turin, and for a while in 1829 held the post of viceroy of the island of Sardinia. On the death of Charles Felix, the last of the elder branch, April 27, 1831, Charles Albert succeeded to the throne, and adopted a policy which, however liberal in part, was far from realizing the anticipations of the partisans of freedom. Some reforms took place; the feudal system was abolished; encouragement was given to agriculture, industry, and science; civil and criminal laws were reduced to a code, and the army received an entirely new organization, which greatly increased its efficiency; but these measures were mingled with others in opposition to national liberty. The popularity of the king was as undecided as his action. On the accession of Pope Pius IX. Charles Albert seemed to return heartily to his former opinions, granted a constitution to Sardinia, created a civic guard, amnestied the exiles of 1821, and granted more liberty to the press. On the outbreak of the revolution of 1848, he presented himself as the champion of Italian independence, and at once aided with his arms the insurgents in Lombardy and the duchies of Parma, Piacenza, and Modena, saying boldly to those who offered to help him in the good cause: *L' Italia farà da se* ("Italy will help herself"). He fought successfully at first, defeating the Austrians at Pastrengo, April 30, 1848; Goito, May 30; Rivoli, June 11; and storming Pizzighettone and Peschiera; but ill supported by the Lombard troops, he was in his turn worsted at Custoza, July 25, by Marshal Radetzky, who had taken Vicenza, Treviso, and Padua, obliged to hastily retreat to and from Milan, where he ran the risk of being taken, and had to sue for an armistice, through which he lost all his former advantages. On the expiration of the truce, he resumed hostilities; but his army, under Gen. Ohrzanowski, was completely destroyed at Novara, March 23, 1849, and the hopes which Italy had placed in him were entirely lost. He then resigned the crown to his elder son, Victor Emanuel II., and retired to Oporto, where he died 4 months later. His remains were brought back to Turin, where a statue has been erected in his honor.

CHARLES EMANUEL I., surnamed the Great, duke of Savoy, born at the castle of Rivoli, Jan. 12, 1562, died at Savilian July 26, 1630. He succeeded his father, Philibert Emanuel, surnamed Ironhead, in 1580. His bold and enterprising spirit, instigated by boundless and unscrupulous ambition, soon embroiled him in the wars of his time, and he successively entered into alliances with Spain, France, and the emperor of Germany, which he broke, however, as soon as it suited his interests. But he was possessed of remarkable talent, even of great scientific accomplishments, and distinguished himself by his courage in many a battle. In 1585 he married Catharine, the daughter of Philip II. of Spain. This connection, and some pretensions to the throne of France after the death of Henry III., made him the enemy of

Henry IV., who had still to conquer his country. Involved in war with Henry for the marquise of Saluzzo, and with the Swiss cantons of Geneva and Bern, he was compelled by a defeat at St. Joire (Oct. 1589) to an unprofitable peace, but soon recommenced hostilities in alliance with the Catholic league, penetrated into Provence, occupied Barcelonnette, Antibes, and Fréjus, and entered Aix as victor (Nov. 1590). This was but the commencement of a long war, which was carried on with varied success, and after a series of victories and defeats was terminated by the peace of Lyons (1601), which gave Saluzzo to Charles Emanuel in exchange for some small frontier districts ceded to France. He then made a sudden attack on Geneva, but the enterprise failed; many of his soldiers were killed, others hanged as robbers. Afraid of the growing influence of Spain in Italy, he entered into alliance with France and Venice; but after the assassination of Henry IV. (1610), France concluded peace with Spain, abandoning the duke of Savoy. He then sought the alliance of the house of Hapsburg, and after the extinction of the ducal line of Mantua, laid claims to Montferrat (1612). After the death of the emperor Matthias (1619), he became a candidate for the crown of Germany, but was beaten by Ferdinand II. Restless in his ambition (which also led him into schemes of conquest in Cyprus and Macedon), he attacked Genoa (1624), and finally brought upon himself the enmity of all his former allies. The French occupied Pignerol, threatened Turin, and finally conquered Savoy. Broken by these disasters, the old Charles Emanuel died suddenly. He was a zealous patron of arts and sciences, but plunged his country into calamities by his ambitious wars. He was succeeded by Amadeus I.

#### VI. SPAIN.

CHARLES IV., king of Spain, born in Naples, Nov. 12, 1748, died in Rome, Jan. 19, 1819. The son of Charles III., he succeeded to the throne in 1788, having married at an early age his cousin, Maria Luisa of Parma, by whom he was entirely controlled. When Manuel Godoy, a handsome private in the body guards, became her lover, she contrived to make him the friend of her husband; and she succeeded so well, that they lived together on the most intimate terms, the favorite of the queen becoming also the favorite of the king. He was always ready to confer new favors upon Godoy; raised him very rapidly to the rank of a lieutenant-general, and bestowed upon him the title of duke of Alcudia, and the office of minister of foreign affairs. Complications arose with the French republic, owing to the efforts of Charles to save the life of his cousin, Louis XVI., whose execution he resented by declaring war against France. His army, however, was soon worsted, and he was happy to conclude in 1795 a treaty of peace at Basel. This treaty was signed by Godoy, who then assumed the title of "Prince of the

Peace." In consequence of this alliance with France, Charles became involved in a war with Portugal and England. The hostilities against the former country did not last long, nor were they severe; but in the contest with the latter, the Spanish navy received a deadly blow, in 1805, at the battle of Trafalgar, while Spain lost, at the same time, its richest colonies in America. Napoleon, who found a pliant tool in Godoy, finally resolved on deposing Charles IV., who also had an enemy in his own son Ferdinand. The young prince, whose bad qualities were still unknown to the nation, gained universal favor by his opposition to Godoy and the French rule, and used his influence to annoy his father. Charles, disgusted with his son's conduct, and tired of the French domination, resolved to retire to Spanish America; but on the very day he intended leaving his royal residence at Aranjuez, March 18, 1808, he was stopped by a tumult of the populace instigated by Ferdinand. The rage of the people was now directed against the queen and Godoy. In order to save Godoy's life, Charles abdicated in favor of Ferdinand, but a few days later sought to withdraw the abdication. Napoleon put an end to the feud between father and son by deposing them both. Charles and Ferdinand were taken to Bayonne, where Napoleon was to pronounce between them as an umpire. As soon as the emperor got them in his power, he obliged Ferdinand to restore the crown to his father, who was in his turn persuaded to relinquish it to Napoleon. This episode was the turning point of the all-powerful emperor's fortune. As for Charles, he received in exchange for his crown the castle of Compiègne, surrounded by a forest abounding in game, with a yearly pension of 6,000,000 francs. Notwithstanding the allurements of Compiègne, Charles went to Marseilles. In 1811 he was permitted to repair to Rome, always in company with his wife and Godoy, who, strange to say, became every day dearer to him. After the fall of Napoleon, Ferdinand having given dissatisfaction to the Spaniards, a proposition was made to Charles to renew his claims to the crown; but he refused, his only desire being to spend his latter years in retirement in the company of his wife and of her paramour. The former having died in Dec. 1818, grief preyed so much upon his mind that he died within a month afterward.

#### VII. SWEDEN.

CHARLES XII., king of Sweden, born in Stockholm, June 17, 1682, killed at the siege of the fortress of Fredericksbald, Norway, Nov. 30, 1718. He was the eldest son of Charles XI. (born Nov. 24, 1655, died April 15, 1697), a peaceful and wise prince, who improved the internal condition of his kingdom, opened the succession to females, and left the crown, with a full treasury, to his son. Charles was well educated by his father, learning French, and speaking fluently in Latin and German, beside his native tongue; he was more than an



ordinary historian, geographer, and mathematician, and it is said that his favorite work was Quintus Curtius's account of the victories of Alexander the Great, whose career his own so much resembled. He was but 15 years of age when he was declared by the estates to have attained his majority, and succeeded to the throne (1697). At first he showed little inclination or aptitude for business, devoting himself wholly to violent bodily exercises, especially the chase of the bear. But before he had been 2 years on the throne, a league between Russia, Denmark, Saxony, and Poland was brought about by Patkul, a Livonian noble, who had been ill-used by Charles XI., and flying to the Russians, had been condemned to death *in contumaciam*. Peter I. of Russia, profiting by the occurrence, sent Patkul, who was a man of ability, as his ambassador to Augustus of Saxony and Poland, and taking advantage of the quarrel of Sweden with Livonia, occupied the shores of the gulf of Finland. Denmark had also been rendered hostile by the annexation of Schleswig-Holstein to Sweden, and the Danish troops invaded the territories of Frederic, duke of Holstein-Gottorp, who had married Hedwig Sophia, the sister of Charles. The latter at once repaired to Stockholm to demand the aid of his brother-in-law, who entered fully into the enterprise, and having obtained by the treaty of the Hague the aid of England and Holland, assumed the initiative with great energy. In May, 1700, he embarked at Carlskrona for the island of Zealand, designing to attack Copenhagen with a fleet of 80 ships of the line, beside transports, assisted by a Dutch and English squadron. In his first engagement Charles gave evidence of the impetuous and daring courage for which he was afterward distinguished; for, on nearing the place of disembarkation, he leaped into the sea, and was the first man on the enemy's soil. Copenhagen was bombarded by the fleets, and would have been invested and closely besieged, when further operations were terminated by negotiations, which had for their result the signing of a separate peace at Travendahl (Aug. 8, 1700), Frederic IV. of Denmark deserting the coalition, and resigning Schleswig-Holstein to the house of Gottorp. In the mean time, a Polish army had overrun Swedish Livonia, and laid siege to Riga, while Peter of Russia besieged Narva, at the head of semi-barbarous hordes, who were only driven to the assault by the terror of the knout. The sword which Charles now drew was never again to be sheathed. From this time forth he affected the habits of an old campaigner; wine was banished from his board; coarse bread was often his only food, and he not unfrequently slept on the ground, wrapped only in his heavy cloak. His dress, too, at a period when all men of gentle birth paid the greatest attention to their apparel, and especially to the hair, was affectedly coarse and ultra-military. Menzel, the German historian, thus describes his appearance, and that of Augustus, at a conference held between

the 2 monarchs some years later: "Augustus, gigantic in person, was magnificently but effeminately attired in false and curling locks, and cloth of gold. Charles, smaller in stature, but a thorough soldier, with a small hat on his closely-shaven head—a style that was afterward imitated by Frederic the Great and Napoleon—was dressed in a coat of coarse blue cloth, with copper buttons, with enormous boots and a long sword." Without awaiting reinforcements, or hesitating a moment, in the depth of winter he proceeded, by forced marches, across Livonia into Esthonia, where he attacked the Russian besieging army before Narva, with but 9,000 men against 40,000, and utterly defeated it (Nov. 30, 1700). Instead of following up his success, he turned aside to attack the Polish and Saxon armies, which were posted in a strong position on the Düna. On the first attack his men were repulsed with some loss, but rallying them in the middle of the stream, he reformed them in the channel of the river, and led them to a decisive victory. Shortly after this Augustus sent his mistress, Aurora von Königsmark, reputed the most beautiful woman in Europe, in the hope of entangling him in some intrigue; but Charles, whose indifference to women amounted almost to dislike, not only refused to see her, but on accidentally encountering her in a hollow way, where he must meet her or actually retreat, he merely bowed without uttering a word, turned his horse's head, and rode back by the way he had come. Another army was brought against him under the Saxon general Riese, whose effeminacy rendered him an object of scorn to the gallant Poles; but in vain, for Charles was everywhere victorious. At Olissov, July 30, 1702, he gained another victory, which would have been decisive had not Charles been detained by a broken leg at Oraocw, which delayed the campaign so much, that although he was closely pursued for 4 days by the Swedes under Rehnaköld, Augustus continually escaped, and afterward found a respite, owing to the invasion of Finland by the Russians, which required the whole attention of Charles until 1706. Charles thus wasted time in petty struggles with Poland and Saxony, allowing the young and growing colossus of the north to recuperate itself at its leisure, when he might have crushed the embryo power which in the end crushed himself. At this time, however, his thoughts seem to have been solely fixed on placing another king on the throne of Poland, young Sobieski having been surprised by Augustus at Ohlau, in Silesia, and carried into Saxony. Stanislas Leszczyński was therefore elected king by the partisans of Sweden and Poland, and, although Rehnaköld was at first held in check by the admirable manœuvring of Von Schulemberg, whose retreat across the Oder is famous in the annals of war, yet on his advancing to aid the czar, whom Charles was driving out of Lithuania, he was completely routed at Fraustadt (Feb. 6, 1706), by his former opponent; in consequence of which defeat Augustus

fell back upon Russia, and Charles, dashing rapidly across Silesia into Saxony, was there received with an enthusiasm of zealous joy, second only to that which had formerly welcomed the hero of Protestantism, Gustavus Adolphus. This bold step so terrified Augustus that he sent his 2 principal councillors from Poland, with full powers to treat with Charles; but when the treaty had actually been signed, having been compelled during the progress of negotiations, which were secretly carried on, to assist his Russian ally at Kalisz, where Peter was victorious, he was so much elated, that he declared the report that peace had been concluded between himself and Charles false in every particular. The declaration did nothing, however, to eject that prince from Saxony, of which he kept absolute possession, and in which Augustus was held in utter contempt and detestation in consequence of his tyranny, but still more of his apostasy from the Protestant church. The Saxon was soon compelled to lower his pretensions, and to meet Charles in conference at Altranstätt, where peace was definitively concluded. By it Augustus resigned all claims to the throne of Poland, and had the infamy to surrender to the conqueror the persons of young Sobieski and the unhappy Patkul, against whom the vengeance of Charles was particularly excited. He had already put to death General Patkul, who was in the Saxon service, and had defended Warsaw against his arms, as being born a Livonian, and therefore a Swedish subject; and he now committed a deed which is the deepest blot on his escutcheon, in allowing himself to be carried away by his hatred for his Livonian *quasi* subject, and causing Patkul to die the agonizing death inflicted only on the lowest and most degraded malefactors, of being broken on the wheel. Even after the signing of the peace the events of the residence of Charles in Saxony are very remarkable, as he fixed his headquarters at Altranstätt, and acted in all respects as if he were the sovereign of the country, recruiting his armies from its subjects, and compelling from that place by threat of arms the emperor of Austria, who had dispossessed his Protestant subjects of 125 churches, which had been given up to the Jesuits, to restore those which had been confiscated, and to permit the erection of 6 new ones. The emperor was at this time hard beset by his enemies. At this juncture, had Sweden joined the coalition against the empire, it would have been in peril of total ruin; and, in order to avert this calamity, Marlborough was sent to visit the Swedish conqueror. The courtly talents of the handsome and polished Englishman were not exerted in vain. Charles was persuaded to withhold his aid from the coalition, and to turn the weight of his arms and military genius against Russia. In Sept. 1707, the Swedish monarch invaded that country at the head of 48,000, marching almost by the very route in which Napoleon followed with above 12 times the number of troops, a

little more than a century later, and shared almost identically the same fate, and in as nearly as possible the same manner, except that the line of his operations having been diverted to the southward, it was into the Turkish territory, not into his own country, that he effected his escape. He crossed the Beresina at Borissov, stormed the Russian lines at Holowczyn, wading the river Wabis, in which he sunk up to the neck, at the head of his forlorn hope, and was at one time surrounded by the Caimucks, many of whom he slew with his own hand. Thence he pursued the enemy with such inconsiderate haste and rashness, that he lost himself and his army amid the forests and morasses of those dreary solitudes. His artillery was lost in the swamps, his men died of hunger, while he was yet advancing; yet he still pressed resolutely onward, the enemy wasting the country before him, according to the invariable practice of the people. Gen. Lewenhaupt, who was attempting to join him with reinforcements from Sweden, was waylaid and defeated, after a desperate conflict which lasted during 8 entire days, by the czar in person, at Liesna, notwithstanding which he succeeded in joining his master at the head of 6,000 men. Up to this time it had been the plan of Charles to strike direct at Moscow; but when he reached Smolensk he was persuaded by Mazeppa, the hetman of the Cossacks, to turn his line of march toward the Ukraine, where the hordes were not as yet reconciled to the Russian yoke, and where they had promised to aid him. But Peter laid waste the country, constantly retreating before him and refusing to deliver battle, and Mazeppa, who was proscribed, failed to aid him until he forced his way, with fearful loss of life from cold, hunger, and fatigue, in the depth of the winter 1708-'9, as far as to Gadatch upon the Dnieper in lat. 52°, where he retired into winter quarters with the intention of attacking Pultowa, a strong town on the river Vorakla, with an abundance of all provisions and supplies of which his army was in want, in the commencement of spring. Before that time arrived, however, his forces were so fearfully reduced that Peter, who, since his defeat at Narva, had completely reorganized his army, resolved to fight, and appeared at the head of 70,000 men, at the moment when his invader was about to invest the city. It so happened that while reconnoitring the advance of the enemy Charles was dangerously wounded in the thigh, and was obliged to limit his exertions, on the day of battle, July 8, 1709, to issuing his commands from a litter instead of directing their manœuvres himself, and charging in person at their head. It is said that there were, moreover, disagreements between Rehnsköld and Lewenhaupt, and that the Swedes, who were preëminently a manœuvring army, did not display their usual superiority in tactics on this occasion. All advantages, however, without counting this, were in favor of the enemy: vast superiority of numbers, better equipment, perfect condition

of men and animals, a superb artillery, above all a single leader, and he their czar. There was reason enough why the Russian should win the day, and he did so completely. Charles escaped, with extreme difficulty, with a handful of followers, into Turkish territory, old Mazepa adhering faithfully to his fallen fortunes. The last salvo was fired by Prince Maximilian Emanuel of Württemberg, who commanded a Swedish regiment. He was taken prisoner and treated with extreme distinction by the czar. The Swedish division of Löwenhaupt was overtaken and compelled to surrender on the Dnieper, and Charles, escaping to Bender on the Dniester, a strong fortress which was then in Turkish territory, where he was hospitably received and allowed to fix his residence by the Ottoman Porte, employed the whole power and energy of his mind to bring about a war between Turkey and Russia. This he succeeded in doing, and the grand vizier, taking the field at the head of 200,000 men, shut Peter up in the Crimea, and his affairs seemed utterly ruined; when his mistress, for she had not yet become his wife, Martha, afterward Catharine I. of Russia, bribed the grand vizier with all her jewels to allow the Russians to escape. That day was decisive of the fall of Charles and of the rise of Russia. Charles, who had been greatly aggrieved that to him had not been assigned the chief command of the Turkish army, galloped impatiently into the camp, but too late to prevent the escape of the czar. Frustrated as he was and severely mortified, the king of Sweden still continued year after year, until 1718, to linger at Bender, incessantly employed in endeavoring to awaken the Turkish government to a consciousness of the danger of allowing the Russians to consolidate their rising power, and constantly hoping that he had succeeded, but ever hoping in vain. He effected the overthrow, by the intrigues of the agents whom he employed at Constantinople, of 4 successive grand viziers, and felt justified in his long delay by the reasonable hopes he entertained of placing himself at the head of a powerful Turkish army. In the mean time Livonia and Esthonia fell a prey to Russia, immediately after the calamity of Pultowa. Riga surrendered. Courland became the property of Peter, who caused its duke to marry his niece Anne Petrovna, and then designedly and deliberately drank him to death. Pomerania was next invaded. The Saxons seized the whole of Poland on the flight of Stanislas, who, deserted by all his adherents, joined Charles in Turkey; the allied forces of Saxony and Russia made themselves masters of all Swedish Pomerania, with the exception of Stralsund and Wismar; and after the war had been carried on with the most atrocious cruelty, Stade, Altona, Garz, and Wolgast being burned to the ground in the dead of winter, and nearly all their inhabitants perishing of hunger, cold, and misery, Prussia was induced to join the anti-Swedish league by the promise of the future possession of Stettin.

But, about this time, strange events took place in Turkey, which nearly altered the whole state of affairs in Europe. The Russian agents having at length persuaded the Ottoman Porte that the residence of Charles at Bender was dangerous to their safety, as he was plotting, they said, to attack Turkey from Poland should he succeed in establishing Stanislas on that throne, he received intimation that he must leave Bender; and on his positively refusing to do so, orders were issued to the seraskier of that place to bring him, dead or alive, to Adrianople. Still with characteristic obstinacy refusing to submit, he barricaded his house, and with the 200 or 300 men who composed his personal retinue, defended it against several thousand Turks with artillery, until the roof taking fire, he was forced to sally out, killing many Turks with his own hand, when his spurs at length becoming entangled, he fell, and was mastered and made prisoner (Feb. 1, 1718), with his eyebrows and eyelashes burnt off his face, and his clothes covered with blood. Thence he was removed to Demotika, near Adrianople, where, obstinate as ever, he remained 10 months in bed, feigning sickness, until, becoming satisfied that he could expect to obtain nothing from the Porte, he sent off a parting embassy to Constantinople, in order to conceal his intentions, and then taking horse, in disguise, by night, travelled day and night through Hungary, Austria, Bavaria, the Palatinata, Westphalia, and Mecklenburg, in order to avoid the Saxons and Prussians, and passing through Cassel incognito, although his 2d sister, Ulrica Elenora, had recently been married to Frederic, hereditary prince of Hesse, reached Stralsund during a dark November night (Nov. 22, 1714). The moment it was known that Charles was in the city, it was invested by a combined army of Danes, Saxons, Russians, and Prussians. It was defended by Charles with extraordinary skill and talent for nearly a year; but being desperate of receiving aid from without, he was forced to abandon it, Dec. 15, 1715, when he retired to Lund in Scania, where he set himself to defend his coasts. For the remainder of his reign the war was carried on for the most part by sea, and generally to the prejudice of the Swedes, though not without Charles at times making dangerous efforts against Norway. At this time his principal friend and adviser was Baron Görz, the minister of Holstein, who undertook the cause of Charles with extraordinary energy and ability, and had all but succeeded in breaking up the anti-Swedish league, which had just been joined by George I. of England. It was the policy of Görz to gain over Peter the Great, by any concession which might be needful, by his aid or connivance to conquer Norway, and thence, with the preconcerted aid of a Jacobine rising, to land in Scotland, and dethrone George I. in favor of the pretender. A treaty had been agreed upon, by which Peter should retain his conquests on the gulf of Finland, Stanislas

should be replaced on the throne of Poland, and Charles should be married to Anne Petrovna, the widow of the duke of Courland. Accident dissolved the whole scheme. A Swedish despatch fell into the hands of the Danes. Denmark dreaded the union of Russia and Sweden; Saxony saw that she should lose Poland; Hanover, that her projects upon Bremen and Verden, Russia that hers on Stettin would fail. Frederic of Hesse would no longer be heir to the crown of Sweden; while the power of Charles, by so great a marriage, would swell to a height dangerous to the aspirations of the Swedish aristocracy. A small Swedish force under Armfeldt had perished from cold while crossing the mountains which separate Norway from Sweden, and another, commanded by Charles in person, was besieging the fortress of Fredericks-hald, in the south of Norway, when the king was shot through the head. His death was supposed to have been predetermined by conspirators, but the hand which did the deed was never discovered. In his pocket were found a miniature of Gustavus Adolphus and a prayer book. His tomb is in the chapel opposite to that where the remains of Gustavus Adolphus are interred, in the royal mausoleum in the Ridderholms church in Stockholm. The walls are decorated with trophies of his various battles, including a standard taken with his own hands in Poland. The hat, clothes, and sword worn by him at the time of his death are preserved in the chapel. Ulrica Elenora and her husband Frederic of Hesse succeeded him on the throne of Sweden. Görtz, for his endeavors to preserve the integrity of the kingdom, was sentenced to the block. Sweden was as fatally dismembered, in order to secure the succession of a false heir to her crown, as she could have been by the utmost spite of her enemies. She has never again risen above the condition of a second rate power.—Charles was distinguished for love of justice, for intrepidity, firmness, temperance, and austerity of life. But his firmness frequently degenerated into obstinacy, his temperance into eccentricity, and his austerity into excessive severity. He was tall and of noble appearance, had a fine open forehead, large blue eyes, flaxen hair, fair complexion, a handsome nose, a pleasant smile, but little beard. Among the works which refer to his life may be mentioned that written by his chaplain Norberg, entitled *Konung Carl XII. historia*; Adlerfeld's *Histoire militaire de Charles XII.*; Lundblad's *Konung Carl XII. historia* (Stockholm, 1880; German translation, Hamburg, 1885-'40); and Voltaire's celebrated *Histoire de Charles XII.*

CHARLES XIII., born Oct. 7, 1748, died Feb. 5, 1818. He was the 2d son of King Adolphus Frederic and Louisa Ulrica, sister of Frederic the Great of Prussia. Destined from his birth to fill the high office of lord high admiral of Sweden, he received a naval education, and made several cruises in his youth. In 1765 he became president of the society of

sciences at Upsal, and in 1770 commenced the tour of Europe. On the death of his father, and the accession of his brother, Gustavus III., to the throne of Sweden, he was recalled home, where he played a very important part in the revolution of 1772, by which the power of the kingdom was vested in the person of the king, with the consent of the estates. This was effected mainly by the establishment of the order of Vasa, and by the organization of clubs and committees among the young officers of the army and navy in the confidence of the king. It was agreed that the brothers of the king should superintend and commence the movement in the country, while the king himself should attend to the management of the affair in the capital. The revolution broke out by the pretended siege of Christianstadt, Aug. 12, 1772, by Prince Charles, in which no one was injured, and the whole business was so admirably managed, that without the spilling of a single drop of blood the country was delivered from the factious tyranny of the nobles, and the king honorably restored to the authority of his ancestors. Shortly after these events, Prince Charles was created duke of Sudermannland, and appointed governor-general of Stockholm; but in the war which shortly afterward broke out against Russia, which persisted in fomenting dissensions in Sweden, he returned to his old profession, assumed the command of the Swedish fleets, and defeated the Russians in a great naval engagement in the gulf of Finland; in reward for which distinguished service he was raised to the governorship. On the murder of his brother, Gustavus III., he was appointed regent in 1792; in which situation, at a highly critical period, he preserved the kingdom for his nephew, Gustavus IV., in its constitutional form, kept it externally and internally at peace, and united for the protection of navigation in the northern seas with his neighbors the Danes. In 1796 he resigned his power to his nephew Gustavus, who, having attained his majority, ascended the throne in that year, under the title of Gustavus Adolphus IV. After his nephew's accession, Prince Charles retired into private life, passing his time in literary and scientific pursuits, and appeared no more in public affairs until his nephew having become a religious fanatic, and that of a most mischievous description, a revolution broke out in 1809, by which he was deposed and his uncle placed at the head of affairs, first as administrator of the realm, and afterward (June 20, 1809) as king of Sweden; in which title he reigned well, moderately, and wisely. His reign was cast in stormy times, during the splendid avator and headlong fall of Napoleon; but he conducted the affairs of state with such consummate ability and prudence, that while almost every other European kingdom was in some degree a sufferer by the ills of the long protracted warfare, Sweden not only had no losses to mourn, either on the field or in the doings of cabinets, but actually re-

ceived Norway at the restoration of peace as a compensation for her loss of Finland. Charles XIII. had married, so long ago as 1774, Hedwig Elizabeth Charlotte, princess of Holstein-Gottorp, but having no heir by her, he had adopted Prince Christian of Holstein-Sonderburg-Augustenburg as his successor; and on his dying prematurely, chose Marshal Bernadotte to succeed him.

CHARLES XIV. JOHN. See BERNADOTTE.

CHARLES, archduke and generalissimo of Austria, duke of Teschen, 8d son of the emperor Leopold II., younger brother of Francis I., and uncle of Ferdinand I., emperors of Austria, born Sept. 5, 1771, in Florence, then the residence of his father as grand duke of Tuscany, died April 30, 1847. Of weak constitution and sickly, he seemed to promise little, but was soon attracted by military subjects, and became fond of geometry and other serious studies. He was 20 years of age at the time of the first war of the emperor, his brother, against France (1792). Under Hohenlohe he took part in the battle of Jemmapes against Dumouriez, and then commanded the van of the prince of Coburg, when he distinguished himself in the engagements of Aldenhoven and Neerwinden, in which the French were defeated. Belgium having been reconquered, he was appointed its governor-general, March 25, 1793. In 1794 he had a part of the Austrian command, in the battles of Landrecy, Tournay, Courtray, and Fleurus, against the victorious army of Pichegru. When the Netherlands were lost, he retired for some time to Vienna to restore his impaired health. In 1796 he took the field again as field-marshal of the empire, and commander-in-chief of the Austrian army on the Rhine, and his victories over Jourdan, at Neumarkt, Teining, and Amberg, soon compelled Moreau, who had advanced as far as Munich, to undertake his famous retreat; the French were driven over the Rhine, and only maintained in their possession the bridges of Hunningen and Kehl. Both these positions Charles attacked and took in the following winter. But while things were going on successfully in Germany under his command, the French, under Bonaparte, were everywhere victorious in Italy, and were rapidly advancing toward the heart of Austria; and when Charles was sent there to check their progress, the victorious young general, imitating the words of Cæsar, could say: "Hitherto I have had to combat armies without a commander; now I have to combat a commander without an army." Charles was compelled to conclude the preliminary treaty of Leoben, April 18, 1797, which was soon followed by the peace of Campo Formio. Having lived for some time in Bohemia, as governor of that kingdom, he was again called to arms after the violent breaking off of the congress of Rastadt (1799), and again defeated the French under Jourdan, who had crossed the Rhine, in the battles of Ostrach and Stockach. Dissensions between him and the commanders of the

allied Russian troops checked his successful operations, and after the defeat of Korsakoff by Masséna at Zürich, he had again to guard the Rhine. Bad health compelled him in March, 1800, to resign his command to Kray, and to retire to Bohemia. He was not yet restored, when he had to hasten again to the defence of the empire of his brother, which, by the admirable marches of Napoleon over the Alps, and of Moreau through Germany, was brought to the brink of ruin. The armistice of Steyer concluded by him with the latter was the preliminary of the peace of Luneville (1801). His great services were now recognized by his appointment as president of the aulic council of war at Vienna, as well as by a proposition made at the diet of the German empire to reward him with a statue, and the title of saviour of Germany; which honors, however, he refused to accept. In 1805 he commanded the Austrian army in Italy against Masséna, but his victory at Caldiero (Oct. 30) was of little avail, as Napoleon, after the surrender of Ulm, was rapidly advancing toward Vienna. The hasty retreat of the archduke Ferdinand to Bohemia, and the battle of Austerlitz, compelled Francis to the peace of Presburg (Dec. 25). Charles was now made generalissimo of all the Austrian armies, and minister of war, with unlimited power, which he used for the reorganization of the forces of the empire, and the creation of a strong reserve and militia. In 1808, after the abdication of Charles IV., king of Spain, the provinces of Catalonia and Aragon called him to the throne of Spain and India, and an English frigate was sent to carry him from Trieste, but was sent back with his thanks. In the war of 1809 he commanded in Bavaria, while his brothers John and Ferdinand led the armies in Italy and Poland; he advanced as far as Ratisbon, but Napoleon's victories at Thann (April 19), Abensberg (20), Landshut (21), Eckmühl (22), and Ratisbon (23), compelled him to retreat. Having, however, received new reinforcements, he defeated Napoleon, who had taken Vienna, in the battle of Aspern and Essling (May 21, 22), thus shaking the belief in the invincibility of the modern Cæsar. This victory brought little more than glory; the great battle of Wagram (July 5, 6) decided against Charles, though commenced victoriously by the Austrians. He retreated in the best order and continually fighting to Znaim. An armistice, however, and soon after the peace of Schönbrunn, put an end to the bloody campaign. Charles was wounded, and feeling at the same time personally mortified, he laid down his military command, July 30, resigning all his offices, and retired to Teschen, whence he afterward went to Vienna. After the return of Napoleon from Elba, he again served for a short time as governor of Mantz; but this was the last act of his public life. He married in 1815 Henrietta, princess of Nassau-Weilburg, and became the father of a numerous and prosperous family, among whom he lived in quiet retirement,

enjoying the honors and distinctions due to his great merits as a military commander, and a high reputation for modesty, frankness, and accomplishments. His 2 works, "Principles of Strategy, illustrated by the History of the Campaign of 1796 in Germany" (3 vols. Vienna, 1814), and "History of the Campaign of 1799 in Germany and Switzerland" (2 vols. Vienna, 1819), are highly esteemed in military literature.—Of his sons, the eldest, Albert, born 1817, is military and civil governor of Hungary; Charles Ferdinand, born 1818, and William, born 1827, are lieutenant field-marsals of Austria; Frederic, who distinguished himself in the naval expedition to Syria (1840), died at Venice, 1846. His daughter Theresa, born 1816, was married (1837) to Ferdinand II., king of Naples; her sister, Maria Carolina, born 1825, to the archduke Rainer Ferdinand.

CHARLES, JACQUES ALEXANDRE CÉSAR, a French physicist, born at Beaugency, Nov. 12, 1746, died in Paris, April 7, 1823. He was remarkable for his skill in public experiments and demonstrations, and his lecture-room, in which he popularized the electrical discovery of Franklin, was attended by one of the most brilliant assemblies of Paris. Montgolfier having sent up a balloon filled with rarified air, Charles immediately constructed the first balloon ever made capable of holding hydrogen gas, with which an aéronaut successfully ascended, Aug. 2, 1783. Charles afterward made an aërostatic voyage himself, rising to the height of 7,000 ft. He invented the megascope and other ingenious optical instruments, was a member of the academy of sciences and librarian of the institute, and had one of the most beautiful cabinets in Europe.

CHARLES AUGUSTUS, grand duke of Saxe-Weimar-Eisenach, son of the duke Ernest Augustus Constantine and Anne Amalia, princess of Brunswick, born Sept. 3, 1757, died June 14, 1828. Having lost his father in the first year of his life, he was educated with the greatest care, together with his posthumous brother, Frederic Ferdinand Constantine, under the regency of his young mother, who, in the first year after the death of her husband, was herself still under the guardianship of her father. Upon the recommendation of Frederic the Great she appointed as their governor the count of Görtz, afterward Prussian minister, giving them as teachers Seidler and Herrmann, Wieland and Knebel, while Schmid conducted the affairs of the little state through the difficulties of the 7 years' war. In Dec. 1774, Charles Augustus together with his brother entered upon a journey to France and Switzerland, during which he made the acquaintance of Goethe, who became his friend, and afterward his minister. Having been declared reigning duke by his mother on his 18th birthday, he married Louisa, princess of Hesse-Darmstadt, and continued the liberal and reformatory government of his mother, gathering around him at Weimar a circle of distinguished men, among whom were Goethe,

Herder, Wieland, Schiller, Voigt, and Musäus. In 1786 he took service in the Prussian army, was in the campaigns of 1792-'98, on the Rhine, as volunteer, was made Prussian lieutenant-general in 1797, and remained in service till after the battle of Jena (1806), when he retired to his dukedom and soon joined the Rhenish confederacy. His soldiers now fought for Napoleon (who came over from Erfurt to see him, together with the emperor Alexander) in Tyrol, Spain, and Russia. Having gone over to the coalition in 1818, he entered the Russian service in the following year, and led an army of Saxons, Hessians, and Russians into the Netherlands. He then went to Paris, London, and Vienna, and took part in the campaign of 1815. The congress of Vienna rewarded him by enlarging his state, and erecting it into a grand duchy, as well as with the compensation of 800,000 thalers. He was the first of the German princes to introduce the promised constitutional representation (1816), and allowed freedom to the press, until he was induced to adopt restrictive measures by the complications that followed the great gathering at the Wartburg in 1817. He died of apoplexy at Graditz, near Torgau, on his return from Berlin. Several scientific and agricultural institutions, a park and botanical garden, are among the improvements with which he adorned his country. He was succeeded by his son, Charles Frederic.

CHARLES CITY, a S. E. county of Va., bounded on the S. by James river, and on the N. and E. by the Chickahominy; area 184 sq. m.; pop. in 1850, 5,200, of whom 2,764 were slaves. It was one of the 8 original shires into which Virginia was divided in 1634. Presidents Harrison and Tyler were both born within the limits of this county. In 1850 the productions amounted to 178,940 bushels of Indian corn, 81,229 of wheat, 2,461 of potatoes, and 5,144 pounds of wool. There were 6 corn and 6 saw mills, 1 tannery, 18 churches, and 92 pupils attending public schools. Value of real estate in 1850, \$861,579; in 1856, \$1,008,497; showing an increase of 16 per cent. Capital, Charles City Court-house.

CHARLES DE BLOIS, or DE CHÂTILLON, duke of Brittany, died in 1364. He was the nephew of Philip VI. of France, who, anxious to secure his fortune, married him to Jeanne de Penthièvre, heiress apparent to the ducal crown of Brittany. But on the death of John III., in 1341, the claim of Jeanne was disputed by John of Montfort, brother of the deceased, who asserted that Brittany could not revert to female sovereigns. Thence arose a war of 20 years' duration, in which the kings of England and of France participated, the former giving assistance to Montfort, while the latter supported Charles de Blois. His cause at first promised to be successful; his competitor died about 1345; whereupon Jeanne of Montfort came boldly forward in behalf of her young son, and displayed such courage, inspired her followers with such enthusiasm, and obtained such assistance from

the chivalry of England, that fortune at last declared for her. Charles was killed in 1864, and the duchy of Brittany was awarded to young Montfort.

CHARLES EDWARD LOUIS PHILIP CASIMIR, son of James Stuart and Clementina Sobieski, and grandson of James II., king of England, born in Rome, Dec. 31, 1720, died there Jan. 30, 1788. His mother's protracted labor of 6 days might have been thought to indicate that his career was destined to afford no exception to the misery that seems to have been the inheritance of the princes of the house of Stuart. But the Jacobite party saw in his birth an event that gave them new hopes. The incapacity of the pretender, or chevalier de St. George, as exhibited in 1715-'16, and the failure of Alberoni's plan for his restoration in 1719, had well nigh driven them to despair. The birth of Charles Edward, and the high character of the race to which his mother belonged, caused a reaction in their feelings, and prolonged the struggle between the constitutionalists and the divine right party for another generation, which was marked by desperate intrigue, and was concluded in wholesale slaughter. They were not disappointed. Charles early gave indications of talent, and of a firmness of purpose inherited from his mother, which misfortune caused to degenerate into sheer obstinacy. He was well educated by Protestant tutors, acquiring accurate knowledge of English, French, and Italian, and of the history of England. His physical education was attended to, and he was dexterous in all manly exercises. He had some taste for the fine arts, and skill in music. In his 14th year he made his first campaign, serving in the Spanish army that besieged Gaeta, in the war between Spain and Austria. Though so young, he bore himself bravely. In 1737 he made the tour of Italy, and, to the annoyance of the British government, was everywhere well received. At Venice the honors due to a crowned head were accorded to him, for which the Venetian ambassador was dismissed from England. His character at this time was that of an amiable, accomplished youth, and his sweetness of disposition is frequently mentioned. From a very early period his mind dwelt upon the thought of recovering the British throne; but if Walpole had continued to rule in England, or if his peace policy had been pursued by his successors, it is obvious that Charles must have reached middle life without an opportunity to make his cast for a crown or a coffin. It was necessary that England and France should be at war to give the chevalier a chance to regain the throne his ancestors had so unworthily filled. England and France became involved in that war which grew out of the Austrian succession, and Charles was invited to France to take command of an army that was to be sent to England. He reached that country the middle of Jan. 1744, landing not far from the place where Napoleon landed in 1815. He went to Paris, but Louis XV.

would not see him. He made a favorable impression on all persons with whom he came in contact, and particularly upon Marshal Saxe, who was to have been the real head of the invading army. That army was assembled on the channel coast, and consisted of 15,000 men. The transports were to be convoyed by 20 ships of the line and 5 frigates. The English were greatly alarmed, and the more so that war had not been declared, though it existed in fact. Their channel fleet was small, most of their ships being in the Mediterranean, where they had been sent to the assistance of the house of Austria. The prince and the marshal embarked, their preparations having been completed, at the close of February. This was the most favorable turn that the fortunes of the Stuarts ever took after the flight of James II. There was much discontent in England, they had a powerful party in Scotland, and the Irish Catholics looked upon them as promised deliverers. Marshal Saxe was the ablest of living soldiers, and one of the few generals who have beaten English armies on pitched fields. Charles was enthusiastic and resolute, and had he landed success would probably have been his. But on March 6 a great storm arose and raged for a week. Many vessels, filled with troops, were lost, and the rest were forced back to France. Though Charles earnestly pressed the French government to renew the attempt, he failed; whereupon he directed his attention to private efforts, and with difficulty was prevented from sailing to Scotland in a fishing boat. In 1745, having obtained some assistance from individuals of British origin in France, he fitted out 2 vessels—the Elizabeth of 67 guns, and the Doutelle of 16—and placing a quantity of arms and ammunition on board of them, sailed for Scotland, accompanied by a few friends. Of money, he had less than \$20,000. The Elizabeth was brought to action by a British cruiser, and was compelled to fly. This was a serious loss, as most of the stores were in her. The Doutelle escaped, and, after some adventures, Charles landed at Moidart, July 25, where he was joined by a few persons, whose numbers were soon increased; the most prominent of the highland chiefs being Donald Cameron the younger of Lochiel. The Stuart standard was raised at Glenfinnan, Aug. 19. His army now rapidly increased, many clans rising in his behalf. He baffled Sir John Cope, the royal general, descended upon the lowlands, entered Perth, and took possession of Edinburgh, Sept. 17. The lowlanders who joined him were not numerous, most of them, as one of their number pithily expressed it, having resolved to wait and see which side the hangman should take before making up their minds. Even of the few leading men who gave in their adhesion, many were probably in the condition of Lord Balmerino, who said that he was so poor he would have joined the Mogul had he set up his standard in Scotland. The victory of

Gladsmuir, won Sept. 21, in which Cope's army was annihilated by the highlanders in 5 minutes, raised the prestige of Charles's arms, and he was enabled to march into England at the head of 6,000 men, entering that country Nov. 8. He took Carlisle, and penetrated to Swarkstone Bridge, 6 m. beyond Derby, and 94 from London, without encountering any opposition, his superior military genius enabling him to baffle the English army under Wade. But if he met no opposition, neither was his force increased, save by a few individuals, most of whom were of the lowest rank. The English nobility at that time contained many Jacobites, and they were still more numerous among the gentry; yet they remained quiet, when the example of a few leading men among them would have caused an extensive rising and a change of dynasty. Most of them were like Dr. Dryasdust's uncle, who, as his nephew said, "so little esteemed personal safety, in comparison with high church principle, that he waited but the news of the adventurer's reaching London to hasten to join his standard." Discouraged by this coldness, the chiefs compelled Charles to return to Scotland, where a new army had been formed, partly composed of troops from France, and partly of native levies. Charles was bitterly opposed to this course, and the view he took showed his superiority. Had the army pressed forward, London would have fallen into its hands. On the retreat, the insurgents evinced their usual military preëminence, outmarching even their mounted enemies, and inflicting a bloody repulse upon them at Clifton. They took Glasgow after their return, and defeated the English army, commanded by Hawley, Jan. 17, at Falkirk. The duke of Cumberland was then sent to Scotland, and Charles was compelled to retreat again, much against his will. Toward the middle of April, 1746, the 2 armies were near to one another, and Charles planned a night attack on Cumberland, which failed because of want of due information respecting the country. On April 16 was fought the battle of Culloden, which was as fatal to the prince's character for generalship as to the fortunes of his house. With a fatigued, starved, and diminished army, he awaited the attack of the superior forces of the royal army, the latter being well supplied with every thing to render them efficient. At first the action was one of artillery only, in which the highlanders suffered terribly. At length their right wing charged, swept away a large portion of the 1st English line, and was itself almost annihilated by the fire and bayonets of the 2d line. Even then the royal army would have been defeated, had the Macdonalds imitated the daring bravery of the MacLeans, Frasers, MacIntoshes, Stuarts, and Camerons; but, angry because they had been placed on the left, whereas they claimed the right as theirs from the day of Bannockburn, they refused to charge, and gave the enemy victory. Culloden was the last battle fought

for the fated line. Charles fled, and after 5 months of the most romantic wanderings he escaped to France, where he was well received, the king, for the first time, personally welcoming him. He was a great favorite at court. Some faint show was made of renewing the attempt to invade England, but Charles refused to promise to cede Ireland to France in the event of success, and the plan fell through. He visited Madrid in 1747, and was well received. In 1748 he was expelled from France under insulting circumstances, in compliance with the terms of the peace of Aix la Chapelle. This treatment he had brought upon himself, for the French government had sought in every way to avoid extremities, and nothing but the prince's obstinacy made violence necessary. He was also compelled to leave Avignon, and refused a home in Venice. He visited Germany, and afterward resided for some time in the duchy of Bouillon. He became a Protestant in or about 1752. He was engaged in some Jacobite conspiracies, and visited London in 1760 and in 1768. The story that he was present at the coronation of George III. is slenderly supported. He finally took up his residence in Florence. His father dying in 1766, he became the legitimate king of Great Britain. This title he never assumed, but was known as the count of Albany, which designation he had borne as early as 1784. He married in 1772 the princess Louisa of Stolberg-Gedern, who was more than 80 years his junior. The only effect of this marriage was to add domestic misery to the sufferings of the prince; his name is to be found in the long list of distinguished men who have been dishonored husbands. Alfieri was the princess's lover. She fled from her husband, and a judicial separation took place in 1788. The fact that the prince was intemperate in his last days has often been dwelt on, and it has been said that he fell into the habit of using spirits during his Scottish wanderings. Drunkenness, however, was the vice of the higher classes of that age, and was common with men who had never known hardship or misfortune; but Charles's position attracted attention to all that he did, and men contrasted his conduct with his pretensions and earlier career. His last years were spent at Rome, where he died on the anniversary of the execution of his great-grandfather, though most accounts place the event on the following day. He left an illegitimate daughter, who survived him but a year. He was one of those rare characters who bear prosperity better than adversity. His talents were high, and no member of the Stuart family ever exhibited more practical ability. His conduct in the campaign of 1745-46 evinced an original genius for war. He found himself in circumstances entirely new, and he adapted himself to them with all the facility of genius.—The history of Charles, and of his Scottish campaign, has been written by many eminent men—by Scott, R. Chambers, Pichot, J. H. Jesse, Earl Stanhope, C. L. Klose, and others. There is



much curious matter respecting the conduct of the Jacobites, and of the prince and his family, in the "Memoirs of Sir R. Strange, and of Andrew Lumisden," by Mr. Dennistoun, Mr. Lumisden having been private secretary to both Charles and his father. In the early years of the 19th century the interest in the history of "the young pretender" was renewed by the writings of Scott, who has introduced him into 2 of his novels, "Waverley" and "Redgauntlet." Scott had known many Jacobites, and wrote of "the forty-five" and subsequent crises in their history from positive knowledge; and though he was a constitutionalist, his amiable nature caused him to sympathize with the members of a fallen party.

**CHARLES RIVER**, a winding stream rising in Worcester co., Mass., flowing through Norfolk and Middlesex. It meets the tide waters and forms part of Boston harbor. Navigable to Watertown, 7 m. W. of Boston.

**CHARLES'S WAIN**, a name given to the constellation Ursa Major, or the Great Bear, often called also the Dipper. The literal meaning of the name is the rustic's wagon, and some fancied resemblance doubtless was the occasion of its use.

**CHARLESTON**, a district of South Carolina, bordering on the Atlantic; area 1,906 sq. m.; pop. in 1850, 73,605, of whom 44,376 were slaves; in 1858, estimated at 100,000, of whom 60,000 are slaves. The Santee river bounds it on the N. N. E., and it is drained by Ashley and Cooper rivers, which unite to form the harbor of Charleston. The other chief river is the Edisto, beside which there are numerous inlets, including Charleston harbor, N. and S. Edisto, and S. Santee. These are generally navigable by small craft. The coast is broken by several bays and protected by a stretch of sandy islands. The surface is low, level, and in some places exposed to inundation. The soil embraces every variety, from the richest alluvial mould to the most sterile sand. There are large quantities of waste land, most of it reclaimable. The famous sea island cotton is grown along the rivers and coast. In former periods indigo, tobacco, silk, and wine were extensively produced. The olive, orange, and lemon have been found to mature in the open air, though cut down by occasional very severe winters. The palmetto and the pine are among the indigenous forest trees. The productions in 1850 were 818,787 bushels of Indian corn, 498,972 of sweet potatoes, 15,700,608 lbs. of rice, and 4,221 bales of cotton. There were 22 corn and flour mills, 8 saw mills, 1 cotton factory, 2 tanneries, 12 printing offices issuing 14 periodicals, 22 churches, 8 colleges, 50 academies, and 1,196 pupils attending public schools. The South Carolina railroad, which terminates at Charleston city, runs through this district; a communication between the Santee and Cooper rivers has also been opened by a canal 22 m. long. This is by far the most populous district of the state. Several battles during the revolution,

including those of Eutaw and Fort Moultrie, were fought in this district. Capital, Charleston.

**CHARLESTON**, the capital of the district or county of the same name, in the state of South Carolina, and the chief commercial city of that state, stands at the confluence of the two rivers, Ashley and Cooper, which here unite and form a spacious and beautiful bay. These rivers run a parallel course for nearly 6 m., widening as they approach the sea, thus gradually narrowing the site of the city into a complete peninsula. Here, spreading over an ample area, and blending with the Atlantic, they make one of the most capacious of harbors, landlocked on all sides except one, on the east, from whence the sea pours in. The extent of the bay is ample for all the commercial purposes of a great city. The *coup d'œil* constitutes a beautiful picture, which might compare with any in the world, but for the lack of background, and of the relief afforded by conspicuous eminences. The lands around, and that upon which the city is built, are all equally low and level, rising only a few feet above the sea. The dwellings seem to emerge from the water, and at a little distance the shore line becomes indistinct. The width of the inner harbor, at its mouth, is something over a mile. The passage is defended by 3 fortresses, well placed to resist the approaches of an enemy. On the right hand, at the entrance, is Fort Moultrie, on Sullivan's island, occupying the site of that memorable fortress, Sullivan, which, on June 28, 1776, beat off the British fleet of Sir Peter Parker, in one of the most brilliant fights of the revolution. On the left hand, raised upon a mole in the harbor, and directly covering the channel, is Fortress Sumter, a recent erection, and one of the best built forts of the United States. Immediately in front of the city, and but a mile from it, is Castle Pinckney, covering the crest of a mud shoal, and facing the entrance. The approaches are thus probably as well defended as they can be by such structures, and under the present greatly advanced system of offensive warfare. As against shipping, before the application of steam, there could be little doubt of the perfect efficiency of these 3 structures for the defence of the harbor. The outer harbor, lying within the bar, extends from Sullivan's island to the south channel, below the lighthouse, a distance of 6 m. The bar is the most serious obstruction to the commercial prosperity of Charleston. This consists of successive ranges of sand banks, which stretch away before the entrance for several leagues; and as these ranges consist in part of quicksand, they are liable, from storms and undercurrents, to occasional change of locality, greatly increasing the difficulty of pilotage. Between these successive ranges of sand are formed several channels of varying depths of water. Until recently those in use were but 3: the ship channel, with 16 feet water at ebb; the small or middle channel, with 14; and Lawford's, or the

south channel, with but 10 feet. Recently, a fourth channel has been discovered, called Maffitt's from the discoverer, an officer engaged in the coast survey. This brings the vessels close in to the shores of Sullivan's island, is more free from shoals, is of bolder cut and more direct passage, and promises in a great degree to lessen, if not entirely overcome, the impediments of the entrance, which have so seriously affected the commerce of the port. Efforts are now in progress to increase the depth and facility of the Maffitt channel, by bringing art to the help of nature. A dredge steamer of great power, which works by suction, is employed daily in removing sand and mud from the bed of the channel, and with the most encouraging results. Already, the largest ships that frequent the harbor give it the preference over all others. Buoys are set at proper distances, and a knowledge of the bearings of the lights and beacons will make the entrance easy. The best of these channels may, at high water, give a depth of 18 or 20 feet. The average rise of the tide upon the coast is about 7 feet. The ship channel is  $11\frac{1}{2}$  m. from the city, the middle  $7\frac{1}{2}$ , while that of Maffitt is probably still nearer. The approach to the coast is easy enough, the shoaling gradual, and with proper care and good seamanship, the soundings alone would assure the mariner of safety. The lights along the coast of this district begin at the well-known Cape Roman; there is a light at Bull's, and floating lights and bell-boats contribute to disarm all the dangers of the coast. The lighthouse at the entrance of Charleston harbor is on Lighthouse island, and W. of the ship channel, lat.  $32^{\circ} 41' 55''$  N., long.  $79^{\circ} 52' 39''$  W. The tower is of brick (white), 110 feet high; the light is at an elevation of 183 feet above the sea. It may be seen at a distance, in good weather, of 20 nautical miles. Until recently the light was revolving; it is now stationary. This light, and the beacon in front of it, are used as a range for crossing the bar of the main or ship channel. The beacon in front of the main light is also fixed. It is visible at a distance of 10 nautical miles. The color of the tower is red. The height of the light above the sea level is 50 feet. There are beacons also on Morris and Sullivan's islands, at Fort Sumter, Castle Pinckney, Mount Pleasant, and on the battery at White point, all within the harbor. The beacon on Morris island ranges with the outer bar of the small channel; those on Sullivan's have a channel range leading from the main ship channel into the harbor; the Castle Pinckney light is red; that on Mount Pleasant is in course of erection. The battery beacon, at the E. end of the city, is a shaft of bronzed iron, and with Fort Sumter light forms a range to enter the N. channel; it is lighted by gas. From the entrance of the middle channel you command a full view of the city, guided by the spire of St. Michael's church, which bears from this point about N.  $68^{\circ}$  W. This spire was the only prominent landmark con-

ducting to the city previous to and throughout the revolution. To prevent its use by the British in making their approaches, the city authorities had it painted black, but the enemy found black quite as demonstrative as white, and alleged that the change of color really helped their pilotage.—The city of Charleston is situated in lat.  $32^{\circ} 46' 38''$  N. and long.  $79^{\circ} 55' 36''$  W.; 125 m. S. S. E. from Columbia, the capital of the state; 110 from Savannah, Ga.; 165 from Washington, N. C.; 547 from Washington, D. C.; 587 from Baltimore, 684 from Philadelphia, 778 from New York, and 989 from Boston; with all which places it connects by railroads, and there are steamship lines to Baltimore, Philadelphia, New York, Savannah, Florida, and the island of Cuba. Railroads emerging from the city pass into the heart of the state, penetrate the mountain region, and with their numerous branches extend for nearly 1,000 miles, forming connections with the neighboring states of North Carolina, Georgia, Tennessee, and Mississippi, with all of which it carries on an extensive trade. Hence it is that Charleston is one of the greatest marts in all the South for the great staples of that region, cotton, rice, tobacco, indigo, grain, bacon, wheat, tar, pitch, turpentine, and lumber; and recently, to a remarkable degree, for vegetables and fruit, with which through steamships she largely supplies New York and other northern cities. In the immediate precincts are grown the fine cotton of the sea islands, and the largest rice crops of the United States. A brief summary of the exports in rice and cotton alone, through a term of years, will better serve to show its rank as a place of commerce, and we give a statement thereof for 5 successive years, ending Aug. 31 :

Years.	Upland Cotton, bales.	Sea Islands Cotton, bales.	Clean Rice, Mecsrs.	Equivalent to
1854	408,658	24,766	125,524	Crop of 1858
1855	495,251	24,451	98,608	" 1864
1856	485,814	28,053	127,756	" 1865
1857	875,064	28,469	120,573	" 1856
1858	891,705	25,663	128,840	" 1857

The tonnage of the port in 1853 was 43,000 tons shipping. But the domestic shipping bears no proportion to the resources of the city. The banking facilities of Charleston consist of 6 incorporated banks, each of \$1,000,000 capital; one of \$872,475; one of \$3,160,800; and the bank of the state (a state institution), whose strict capital is \$1,090,977, but which discounts beside on sundry loans made by the state government, these latter varying from time to time; at the present period these sums amount to \$3,461,620. We thus make the aggregate banking capital of the city, as incorporated, on Oct. 1, 1858:

Six banks of \$1,000,000 each	\$6,000,000
Railroad bank	872,475
Bank of Charleston	3,160,800
Bank of the state of S. Carolina	4,562,597
Total	\$14,595,872

The present permanent population of Charles-

ton is about 65,000, of whom probably  $\frac{1}{4}$  are blacks and colored. It is on the increase, and the city is gradually spreading over the whole space between the 2 rivers, its entire length of 3 miles, and beyond this there is a growing suburb. For a long period, from 1830 to 1840, the growth of the city was imperceptible. Since that period,  $\frac{1}{4}$  has been added to the population. The incorporation within a few years of that portion of the population which dwelt without the corporate limits, called the Neck, has doubled the number of the wards, which are now 8, represented by 16 aldermen, and a mayor.—The city institutions are numerous, including, in addition to those which usually belong to municipalities, several charitable foundations, such as an orphan asylum, where 200 or 300 orphans of both sexes are nurtured and educated; poor-house, dispensaries, and hospitals. The city police consists of a day and night guard of about 100 men,  $\frac{1}{4}$  of whom are mounted. Among the endowments of the municipality are a high school and college, both of which possess a very high local reputation. The schools of local or private endowment are several, and well conducted, and the state legislature appropriates largely to the common school system, which has recently undergone great improvements, with an equal increase of efficiency and popularity. Of the several churches of the city, there are 10 Protestant Episcopal, 5 Presbyterian, 5 Methodist Episcopal, 3 Baptist, 1 French Protestant, 3 German Lutheran, 3 Roman Catholic, 2 Congregational, 2 Jewish synagogues, 1 Unitarian, 1 Methodist Protestant, 1 mariners', 1 New Jerusalem (Swedenborgian). Some of these churches are for black and colored worshippers. In all of them are galleries or other parts of the house assigned to slaves. The militia of Charleston constitutes the 2d division of the state military organization. It consists of 2 regiments of infantry (16th and 17th), a regiment of artillery (1st), a battalion of rifles, and a squadron of horse. The fire department is large and efficient, consisting of 12 volunteer companies, with their own engines, and 10 engines beside, belonging to the corporation, the officers of which are appointed by the city. The societies and clubs are very numerous.—Charleston is the second congressional district of the state, and sends one member to the federal congress. She has 2 senators and 17 representatives in the legislature of the state. There are several public libraries. The Charleston library (a society of private stockholders) contains probably 25,000 volumes, and is especially rich in works of natural history. The college library, the mercantile, apprentices', and other libraries, have each considerable and valuable collections. There is a medical college of high reputation, and 2 preparatory seminaries or schools of medicine. There is also an academy of art and a historical society, which has accumulated much valuable material.—The occupations of the people of Charleston are chiefly those of trade (including a large commission business) and the mechanic

arts. There are few manufactures, and those on a limited scale. The South Carolina institute, by public fairs and premiums, has been working auspiciously of late years, under the joint patronage of state and city, with a hope to give a new impulse to the arts, including in its objects every branch of mechanics, manufactures, and agriculture. It has a fine edifice in Charleston, and there is an annual exhibition. There is some ship building carried on, and there are 2 dry docks for repairs. But the capital of the state is mostly employed in agriculture, and that of the city in trade. A large proportion of the population of Charleston consists of the gentry of the contiguous parishes, who, possessing large planting interests, are sufficiently opulent to maintain abodes in the city as well as on their plantations. Here they educate their children, and hither they resort in midsummer. This is the secret of something anomalous in the life of Charleston. It is resorted to in summer as a watering place by the people of the country. This practice will account for some of those characteristics which are thought to be peculiar to the city. The planters bring with them wealth and leisure, and these naturally beget luxurious tastes and habits. These elevate the tone of the society, but tend to the disparagement of labor and industry. Hence extravagant standards of living, and deficient enterprise as well as industry.—The city covers a considerable extent of territory, more than its number of people would seem to imply, as in other cities, in consequence of the suburban character of so many of the residents. The dwelling houses of these are generally isolated, having large open grounds on every side, which are used for gardens. Rare exotics, the finer fruits, the peach, the nectarine, the orange, fill these spaces, and, with the vine, impart a rich tropical character to the aspect of the abode, which itself may be neither very large nor very magnificent. Ample piazzas and verandahs, ranging from 1 to 8 stories, give coolness and shade to the dwelling.—The corporate limits of Charleston extend from Battery or White point, on the extreme southern verge of the city, to an arbitrary line on the north, fully 3 miles above. The same limits, according to the usual mode of building in northern cities, would contain 800,000 or 400,000 people. The city is laid out with tolerable regularity. The streets, with few exceptions, cross at right angles. The 2 principal, King and Meeting, run N. and S., nearly parallel, the whole length of the city, but converge to intersection at or about the northern limits. Meeting street is a fine, broad avenue of 60 feet, having on it a large proportion of the public buildings, and doing a large share of the wholesale trade. King street, too narrow for its uses, is the fashionable shopping street. The cross streets extend from E. to W., from Cooper to Ashley river, and are generally too narrow for health, though the opinion 100 years ago preferred narrow to wide streets, as affording shade, and as giving more volume and force

to the progress of the breeze. The houses are of brick or wood; there are few of stone. Within a few years a city ordinance required that no new buildings should be made of wood; but this regulation applies only to the old city, whose limits on the north were Calhoun street. The upper part of the present city, formerly the Neck, has been incorporated recently, and in consequence of peculiar conditions in the locality, the limited settlement, and the suburban character of the population, there was a modification of this law, leaving them free to erect wooden structures for a period of 20 years. Charleston exhibits a peculiar taste in architecture. It is like no other city in the union in this respect. No people could be more individual or independent of each other. There are few regular blocks or rows of buildings. There is no uniformity. Each man has built after his own fashion, and there are some singular emanations of taste; but what is lost in propriety is gained in variety, and, with fine gardens, open plats of shrubbery, shade and fruit trees, the orange, peach, &c., creepers, vines, the rich foliage of the magnolia, the oak, the cedar, the pride of India, girdling the white dwellings and the green verandahs, the effect is grateful and highly picturesque. There are few public squares in Charleston, and these are generally small; there is less necessity for them here than in cities where the dwellings are crowded together; a large portion of the private residences may be said, each, to have its square. City Hall square is insignificant; Citadel square is a moderately large parade; and in the upper parts of the city there are several small enclosures, equal to a block each, which are attractive though not much frequented. The principal public buildings are the citadel, the orphan house, the court-house, Roper hospital, the old and new custom-house, and the churches, especially St. Philip's, St. Michael's, the Catholic cathedral, the Baptist (Citadel square), central, and others. Just outside of the city, on the N. boundary, E. side, is the Magnolia cemetery, a beautiful and well designed "city of the silent," in which there are some fine monuments.—Charleston was originally settled about 1679, by an English colony, with an English charter, under William Sayle, who became first governor. He first attempted a settlement at Beaufort, but abandoned this place in consequence of its insecurity. It was too easily accessible by sea, too difficult of defence in a period when England had several maritime competitors. Sayle transplanted his colony next to the W. side of Ashley river. Subsequently, after his death, another removal took place, and the colonists passed over E. of the river, and planted themselves on the W. bank of the Cooper; and Oyster Point became Charleston. Its history, from that period to the close of the revolution, nearly 100 years, is one of curious and remarkable interest. Its early conflicts with the tribes of red men by which it was surrounded; its devastations by storm and fire; the terrible scourge which for

so long it endured from the fierce fevers of the low latitudes; the poverty of the early settlers; the niggardly help given by the lords proprietors; its civil commotions, in which finally it exchanged their government for that of the crown; and, subsequently, its conflict with the crown itself, at the period when the colonies generally threw off their allegiance; these are heads of chapters of exciting and instructive interest. Charleston was one of the first of the chief places of the South to assert a common cause with and for the colonies. It was the first to assert its own independence, and to make a constitution for itself. It was thrice attempted by the enemy: first in the fierce assault by Sir Peter Parker and Commodore Arbuthnot on the Palmetto fort at Sullivan's island, when the British fleet and army were beaten off, and almost destroyed; next by the attempted *coup de main* of Gen. Prevost; and thirdly, in the regular leaguer of the city by Sir Henry Clinton, when it stood a siege of 6 weeks by 12,000 British regulars, and succumbed at last to famine. But these details must be sought in other volumes, and in the history of the state at large.

CHARLESTOWN, the 4th city of Massachusetts, in Middlesex co., is one of the oldest places in that state, dating from 1628, though Frothingham, the local historian, is of opinion that July 4, 1629, is the only date for the foundation of the town for which good authority can be adduced. The Indian name is *Mishawum*. It is a peninsula formed by the rivers Mystic and Charles, connecting with the mainland by a very narrow isthmus. Originally the town territory was large, but from it have been taken Woburn, Stoneham, Burlington, Somerville, Malden, much of Medford, and portions of Cambridge, West Cambridge, and Reading, leaving it the smallest town, in dimensions, in Massachusetts. It is connected with Boston by the Charles river and Warren bridges, so that the two places form but one community in most social and business respects. It forms a part of the Boston port of entry. It is a handsome city, and its appearance favorably impresses strangers. It is one of the most interesting spots in American history. A flourishing and noted place in the colonial period, it became conspicuous at the very commencement of the revolution, as well from political as from military circumstances. The British force that fled from Concord and Lexington fell back upon Charlestown, and Gen. Gage threatened to destroy the place if the troops were molested. Most of the inhabitants left their homes, so that on June 17, 1775, when the town was destroyed, not above a tenth part of their number were present. The resolution to fortify Bunker hill, in Charlestown, taken by the Massachusetts committee of safety, led to the battle of that name, which, after making due allowance for patriotic exaggeration, was one of the most important actions ever fought, because of the moral effect it pro-

duced on the nominal victors. It was in course of this battle, and as one of its incidents, that Charlestown was destroyed. This act is often spoken of as if it were one of pure wantonness, but the English officers defended their conduct on grounds of military necessity. Gen. Howe, who commanded the force actively employed, declared that he was annoyed by musketry from Charlestown, and sent word to Clinton to fire the place, which was done by a discharge of shells from Copp's hill in Boston, and by men who were landed for the purpose. The destruction was complete within the peninsula, with the exception of a few houses. Gen. Gage had resolved to burn the town should the Americans erect any works on the hills within its limits. The number of buildings destroyed was about 400, and the value of the property was estimated at more than \$500,000. Burgoyne's rhetorical description of the event has added much to its notoriety. In 1835 the corner stone of Bunker hill monument was laid, which was completed 18 years later. (See BUNKER HILL.) Charlestown appears to have recovered very slowly from the effect of the blow it received in 1775. In 1765, its population by census was 2,031, but in 1790 it was only 1,588, and in 1800 it was 2,751, which did not vary much, we may suppose, from what it had been at the beginning of the war. By the census of 1810 the inhabitants numbered 4,959; by that of 1820, 6,591; that of 1830, 8,783; that of 1840, 11,484. The state census of 1855 showed a population of 21,700, of whom 5,168 were foreigners. The number of voters in 1857 was 3,411. Charles river bridge, connecting the town with Boston, was completed in 1786, and Warren bridge in 1828.—Charlestown is a place of considerable business, of a various character. The principal manufactures are chairs and cabinet ware, lead, soap and candles, leather, lumber, upholstery, steam engines and boilers, railroad cars and other vehicles, boots and shoes, tin ware, whips, stone and earthenware, casks, pickles and preserves, bread, clothing, morocco, gas, chemical preparations, quarried stone, brushes, spirits and beer, blacksmiths' work, willow ware, cigars, snuff, brass ware, mechanics' tools, combs, lime, trunks, masts and spars, boats, saddles, harness, blocks and pumps, silver ware, &c. The commerce of Charlestown is included in the Boston returns. The place has been connected with the ice trade from an early day, and great numbers of vessels are annually laden with ice at its wharves. According to the official returns of 1855, there was then \$600,000 invested in the business, and the number of tons of ice taken was 186,000. The state valuation in 1850 showed the property of Charlestown to be worth \$8,624,690. It is now \$14,048,800. The number of dwelling houses in 1850 was 2,136, and in 1855 it was 3,126. The Boston and Fitchburg railroad company formerly had both their passenger and business stations for Boston at Charlestown, but the passenger station was removed to Boston in 1848, and

their lands at Charlestown are now devoted to the merchandise station, and to extensive arrangements for manufactures and repairs. The Massachusetts state prison, which was founded in 1800, is in Charlestown, on a point of land near East Cambridge. The number of prisoners there on Sept 15, 1858, was 485. This institution has been very successfully governed, and is now under the charge of Mr. Gideon Haynes, who was appointed warden in 1858. The McLean asylum for the insane, which was formerly in Charlestown, is now in Somerville, which was incorporated in 1842, and is composed of territory which made part of Charlestown until that date. One of the best navy yards belonging to the United States is at Charlestown, where it was established in 1798. It is on the N. side of Charles river, is enclosed by a high wall of great strength, and covers about 60 acres. The yard contains several dwelling houses, numerous store houses, rope walks, machine shops, ship houses, &c. The dry dock is a fine work, and cost nearly \$700,000. Its length is 341 feet, width 80, and depth 80. Some of the best ships belonging to the national marine were built at this yard, among them being the Independence, the Merrimack, the Jamestown, the Cumberland, and others. Extensive repairs of vessels are there made, and in the summer of 1858 there were 1,550 men employed in the yard. The naval hospital connected with the yard is at Chelsea. Charlestown has 2 banks, with capitals of \$450,000, 1 insurance company, and 2 savings banks. There are 19 churches, belonging to Baptists, Methodists, Unitarians, Universalists, Roman Catholics, and Orthodox Congregationalists. There are 89 public schools in Charlestown, attended by 4,485 scholars, and having 10 male and 61 female teachers. The city raises \$35,000 annually for schools. There is an incorporated academy, with 140 pupils; and the number of other academies and private schools is 5, with an average attendance of 123. The fire department consists of 6 engine companies, 1 hose company, and 1 hook and ladder company. The government is in the hands of a board of 6 aldermen and 18 councilmen, and a mayor. Charlestown forms a part of the first senatorial district of Middlesex co., which elects 1 state senator, and is divided into 2 representative districts, the 1st (ward 1) electing 1 member, and the 2d (wards 2 and 3), 2 members of the state house of representatives. The history of Charlestown down to the date of the battle of Bunker hill has been well written by Mr. R. Frothingham, jr., one of the editors of the "Boston Post."

CHARLESTOWN, the capital of Jefferson co., Va., a thriving post village on the Winchester and Potomac railroad; pop. about 1,500. It is situated in the region called the valley of Virginia, and is surrounded by a beautiful and fertile country. The land on which the town is built formerly belonged to Col. Charles Washington, the brother of Gen. Washington, and the place was for some time his residence.

**CHARLETON, ROBERT M.**, an American lawyer and author, born at Savannah, Ga., Jan. 19, 1807, died in the same city, Jan. 8, 1854. Early admitted to the bar, he became successively member of the state legislature, United States district attorney, in 1884 judge of the supreme court of the eastern district of Georgia, and in 1852 United States senator. The best known of his writings for periodicals are the "Leaves from the Portfolio of a Georgia Lawyer," which appeared in the "Knickerbocker Magazine." In 1839 he published a volume of poems, including the poetical remains of a deceased brother, the second edition of which, containing also 2 prose addresses, appeared in 1842. He was esteemed for his finished oratory and genial social powers.

**CHARLEVILLE** (anc. *Arca Remensis, Caropolis*), a French town, noted for its beauty, in the department of Ardennes (Champagne), situated on the Meuse, about a mile N. of Mézières, and connected with that town by an avenue and suspension bridge; pop. 9,162. It was a military station until the end of the 17th century, when its fortifications were destroyed, and subsequently the royal manufactory of arms was removed. The prosperity of the town has since increased. It has an active export trade in wine, spirits, coal, iron, and slates; a manufactory of muskets, nail works, copper foundries, and tanneries; a commodious port, a public library of 22,000 volumes, a college, an ecclesiastical school, and a theatre.

**CHARLEVOIX**, a N. W. county of the S. peninsula of Michigan, bordering on Lake Michigan, and having an estimated area of 620 sq. m. Its W. shore is deeply indented by Little Traverse bay, and 2 or 3 considerable lakes lie wholly or partly within its boundaries. It has been formed since the last census (that of 1850) was taken.

**CHARLEVOIX, PIERRE FRANÇOIS XAVIER DE**, a French historian and traveller, born Oct. 29, 1682, at St. Quentin, died Feb. 1, 1761, at Laffèche. After being professor of Latin literature and philosophy in the colleges of the order of Jesuits, of which he was a member, he was sent a missionary to Canada. He ascended the St. Lawrence, travelled through the country of the Illinois, and descended the Mississippi to its mouth. In 1722 he visited St. Domingo, and after his return to France was during 20 years a contributor to the *Journal de Trévoux*. His principal works are: *Histoire et Description du Japon*; *Histoire de l'Île Espagnole ou de Saint Dominique*; *Histoire du Paraguay*; and *Histoire de la Nouvelle France*. The last named work is often referred to by American historians.

**CHARLOTTE**, a S. W. county of New Brunswick, separated from Maine on the W. and S. W. by the St. Croix river, bounded S. by the bay of Fundy and Passamaquoddy bay; area 1,250 sq. m.; pop. in 1861, 19,988. It is drained by several rivers, emptying into the bay of Fundy, and includes Grand Manan, Campo

Bello, and Deer islands. It has a fertile soil, but the inhabitants attend more to commerce, ship building, and the fisheries than to agriculture. The productions in 1851 were 8,263 bushels of wheat, 409 of Indian corn, 69,998 of oats, and 163,117 of potatoes. There were 102 saw mills, 14 grist mills, 4 tanneries, 6 woollen factories, 1 iron foundry, 53 churches, and 2,912 pupils attending schools. Capital, St. Andrew's.

**CHARLOTTE**, a S. E. co. of Va.; area 550 sq. m.; pop. in 1850, 13,955, of whom 8,988 were slaves. The surface is hilly; the productions in 1850 were 3,868,040 lbs. of tobacco, 872,867 bushels of corn, 85,653 of wheat, and 171,872 of oats. There were 436 pupils in the public schools, and 25 churches. The county was formed from part of Lunenburg in 1794. Capital, Marysville.

**CHARLOTTE**, a thriving town on Sugar creek, and capital of Mecklenburg co., N. C. It is the terminus of the Charlotte and South Carolina railroad, and of the Central railroad of North Carolina. A plank road 120 m. long connects it with Fayetteville. The town is situated upon the gold range of the Atlantic states, and its prosperity is principally owing to the working of the mines in its vicinity. (See GOLD.) A branch mint was established here in the year 1888 for coining gold. Pop. in 1858, about 2,500.

**CHARLOTTE AMALIE**, or St. THOMAS, the capital of the island of St. Thomas, Danish West Indies. It has an excellent harbor, and is built on 8 hills, which are spurs of a mountain rising immediately in the rear of the town. The citadel of Christian's Fort and 2 batteries are its chief defences. This town possesses considerable trade, and contains a number of churches and chapels belonging to various denominations, and a Jewish synagogue. Pop. estimated at about 12,000.

**CHARLOTTE AUGUSTA**, commonly called Princess Charlotte, daughter of Queen Caroline and George IV., born at Carlton house, Jan. 7, 1796, died at Claremont, Nov. 6, 1817. At an early age she was placed under the care of the bishop of Exeter and Lady Olifford, and became one of the most accomplished princesses of her day. The prince of Orange was proposed to her as husband, but she bestowed her affections upon Prince Leopold of Saxe-Coburg (who in 1831 became king of Belgium). She married him May 2, 1816, and they took up their residence at Claremont, where she died after having been delivered of a still-born child. Her death caused universal grief in England, and the physician who had attended her committed suicide in despair.

**CHARLOTTE HARBOR**, or BOCA GRANDE, an inlet on the W. coast of Florida, about 25 m. long, from 8 to 10 m. wide, but only 10 or 12 feet deep. Its entrance, which lies between Boca Grande key and Gasperillo bay, is  $\frac{1}{2}$  of a mile wide and 6 fathoms deep. This harbor is sheltered from the sea by several islands, and

produces the finest oysters and the greatest variety of fish, wild fowl, and deer, of any part of the coast.

**CHARLOTTE TOWN**, the capital of Prince Edward island, is situated in Queen's co., at the junction of Hillsborough river with the York river; pop. nearly 5,000. It has a good harbor, is well built, contains the so-called colonial buildings, with accommodations for the legislature and courts of law, the old court house, an Episcopal church, Scotch church, a Baptist chapel, a Methodist chapel, a Roman Catholic church, an asylum for lunatics and poor, an academy, and a national school.

**CHARLOTTENBURG**, a handsome town in the Prussian province of Brandenburg, government of Potsdam, and circle of Teltow, on the left bank of the river Spree, connected with Berlin by a fine promenade, which is lighted at night, the distance being only about 4 miles; pop. about 2,000. The place takes its name from Sophia Charlotte, the queen of Frederic William I., who in 1706 caused a palace to be built there. Frederic the Great added a new chateau, and endowed it with a valuable gallery of art, which, however, especially the part which contained the paintings, was injured by the Austrians in 1760.

**CHARLOTTESVILLE**, a town of Virginia, capital of Albemarle co., on Moore's creek, 2 m. above its entrance into Rivanna river, and 81 m. N. W. of Richmond; pop. in 1853, 2,600. Its chief importance is due to its being the seat of the university of Virginia, an institution planned by Mr. Jefferson, founded in 1819, and whose buildings were erected at an expense of over \$200,000. (See VIRGINIA, UNIVERSITY OF.)

**CHARM** (Lat. *carmen*, a verse, a song, or a charm), a word used in necromancy to designate a power or spell exercised in an occult manner, by which the will and action of the charmed person are enchained. In ancient times charming was supposed to be effected by the assistance of the devil. The Scriptures (Deut. xviii. 11) place it in the same category with sorcery, witchcraft, and necromancy, and treating them all as acknowledged facts, forbid them to be practised. The charm was supposed to be accomplished by placing words or sometimes things in a certain arrangement (hence the name). The charming of serpents is also mentioned in Scripture. Something of the kind is still practised among the jugglers of India.

**CHARNEL**, or **CHARNEL HOUSE**, originally a place for depositing flesh, a larder, but now generally used to denote a receptacle for the dead, usually near or in a church.

**CHARON**, in Greek mythology, son of Erebus and Nox, the ferryman who transported the souls of the dead over the river Acheron to the infernal regions. The fee exacted for this service from each spirit ferried over by him was never less than 1 obolus, nor more than 3. The spirits of those who had not been honored with a funeral were not permitted to enter Charon's boat without having previously wandered

on the shore for a century; nor could any living person be admitted into it till he had shown its master a golden branch, the gift of the Cæmæan sybil. The ferryman was once imprisoned for a whole year for having conveyed Hercules across in violation of this rule, even though he had been compelled by the hero to do so. Charon is generally represented as a robust old man of stern countenance, his eyes glowing like flame, his hair white and bushy, and in his hands a pole to direct his boat on her course.

**OHAROST**, ARMAND JOSEPH DE BÉTHÛZ, duke, a French philanthropist, a descendant of Sully, born at Versailles, July 1, 1738, died in Paris, Oct. 27, 1800. At a time when nobles were generally addicted to licentious pleasures, he devoted himself to the improvement of agriculture and of the condition of the laboring classes. The peasants on his estates were indebted to him for their emancipation, while he was active in promoting their welfare and education. His influence extended over several provinces of France, and the profligate Louis XV. himself acknowledged his services. When France was exposed to invasion, the duke, although he had little sympathy for the new government, contributed a large sum of money for the common defence. Nevertheless he was arrested and his property confiscated, but he escaped the guillotine.

**OHARRAS**, JEAN BAPTISTE ADOLPHE, a French republican soldier and statesman, born at Pfalzburg, in the department of the Meurthe (Lorraine), June 7, 1810, the son of Gen. Charras, took part in the revolution of 1830, was promoted in 1838 to the rank of lieutenant, wrote a series of able articles in the *National* on military affairs, which gave umbrage to the government and caused him to be sent to Algeria; distinguished himself there on the battle field as well as in the training of native troops and the colonization of the country; but owing to his unpopularity with Louis Philippe's government, he was, after much procrastination, promoted only to the rank of lieutenant-colonel. After the revolution of 1848, he became under secretary of state (April 11), and representative for the department of Puy de Dôme (April 22). He was one of the most zealous members of the national assembly, one of the chief pillars of the republican government, and one of the victims of the *coup d'état* of Dec. 2, 1851. First detained at Ham, he was transported to Belgium in Jan. 1852, but expelled from that country, in Nov. 1854, at the request of Louis Napoleon, whom Oharras had denounced on many occasions, but most effectively in a letter of which 50,000 copies were printed in Belgium alone. A pamphlet, *Les trois maréchaux de France* (Brussels, 1853), is also attributed to him. A remarkable work from his pen, *Histoire de la campagne de 1815*, appeared in Nov. 1857, and a second edition soon afterward. Since Dec. 1, 1857, he has been again permitted to reside in Brussels.

OHARRON, ~~PIERRE~~, a French author, born in Paris in 1641, died there, Nov. 16, 1603. His father, a bookseller, had 25 children in all. Pierre studied law at Orleans and Bourges, and had practised already for some years as an attorney when he took holy orders, and soon became noted for his eloquence as a preacher. He filled several ecclesiastical offices in Gascony and Languedoc; was appointed chaplain of Queen Margaret of Navarre; in 1588 returned to Paris, intending to become a monk, but was rejected on account of his age. Remaining a secular priest, he went to Bordeaux, and there became intimately acquainted with Montaigne. Charron is the author of 2 books widely different in their tendency and character. His *Traité des trois vérités*, published for the first time in 1594, is a defence of religion against atheists, of Christianity against other religions, and of Catholics against heretics. In 1601, under the tolerant rule of Henry IV., Charron published his *Traité de la sagesse* (latest edition by Duval, Paris, 1821). To this work, branded by his contemporaries as rank atheism, Charron owes his place in the history of modern philosophy.

OHART (Lat. *charta*, paper), a topographical or hydrographical map. Its special design is not to indicate political divisions, nor geological, botanical, or zoological characteristics, but to represent a portion of the earth's superficies *in plano*. The topographical chart is a detailed draught of the superficial shape of a particular district. The hydrographical chart is chiefly for the use of navigators, and describes shores, banks, harbors, sounds, rocks, flats, and other nautical circumstances, with the latitude and longitude of every place. In the plane chart the meridians of longitude and the parallels of latitude are represented as always parallel and equally distant from each other, and therefore the degrees of each are everywhere equal. Mercator's chart differs from this only by representing the distance between the parallels of latitude as increasing in a certain proportion from the equator toward either pole. In the globular chart the proportion of magnitudes and distances is nearly the same as on the globe itself. The distance of the eye from the plane of the meridian on which the projection is made, is regarded as the sine of an angle of 45°, which makes the meridians always equidistant and the parallels nearly so. A selenographic chart represents the phases and spots of the moon.

CHARTER (Gr. *χαρτης*, parchment; Lat. *charta*), the name given in the middle ages to every kind of written convention. Among the principal kinds were *charta jurata* or *sacramentalis*, by which an engagement was contracted with an oath; *charta de mundeburda*, by which kings, lords, or bishops granted their protection to corporations, churches, or monasteries; *charta apeneas*, or *pantocharta*, by which titles to property were confirmed; *charta beneficiaria*, by which kings and emperors bestowed donations; and *charta partita* or *indentata*, which were common in

England and France, and were marked with indentations or cut asunder, as bank notes are now, in order to guard against counterfeits. The term came gradually to be limited to its modern sense, meaning an instrument by which a king or other sovereign power conferred rights and privileges. Thus many of the early colonies in America had charters from the king of England, by which they were permitted to establish a government, and make laws for their own regulation, which was therefore called a charter government. Among the charters of greatest historical importance are the *magna charta*, the basis of English liberty, which was signed by King John in 1215, and was frequently violated and confirmed by subsequent kings; the charter of peace, which Philip Augustus of France signed in 1222 at Melun, and which settled the relations between the royal officers and the officers of the bishop and chapter of Paris; the Norman charter, granted by Louis X. in 1315, to confirm the rights and privileges which Normandy had enjoyed under its ancient dukes, and which was not abolished till 1789; the constitutional charter, which was the fundamental law of the French realm under the restoration, promulgated by Louis XVIII. in 1814, and which made all authority and executive power reside in the person of the king, and gave legislative power to 2 chambers; and the French charter of 1830, by which the national sovereignty was proclaimed, which was voted by the chamber of deputies, Aug. 7, 1830, and accepted by King Louis Philippe on the following day. It is by royal charter in England that boroughs have the right of sending members to parliament, and that municipal bodies, universities, colleges, and companies are incorporated and endowed with powers and privileges; and in the United States, the act of the legislature creating a corporation is called its charter.

CHARTER PARTY, a contract relating to the hire or chartering of a ship. The owners find the vessel with all proper sails, tackle, and necessary outfit of every description; they also usually provide a captain and crew, whom they victual and pay, and also insure their own vessel. The person who hires the vessel is the charterer. The hire may be paid either by the month or by the voyage; and the contract may either terminate on arrival at a port of destination, or may provide for taking in a fresh cargo there, and proceeding to another port. The provisions vary in every charter party according to the requirements of the parties to the contract.

CHARTERHOUSE (Fr. *Chartreuse*, a Carthusian convent), a celebrated modern school and charitable foundation for aged soldiers and merchants in the city of London. The site it occupies was bought for a public burial place, during the great plague of 1349, by Sir Walter de Manny, who afterward established on it a convent of Carthusians. After the dissolution of the religious houses by Henry VIII. it pass-



ed through several hands, till at length it was bought by Thomas Sutton, who built a hospital and endowed the present foundation. The mastership of the charterhouse is generally filled by some distinguished scholar, and the school has the repute of being among the first classical schools of England. The establishment supports 42 boys as pupils, and 80 pensioners, who must be at least 50 years old. Each boy is educated at a certain expense, and each pensioner receives food, clothing, lodging, fire, and a stipend of money. The right of presentation to the charterhouse is vested, by rotation, in the 16 governors of the hospital. Nine church livings are also in their immediate gift.

CHARTIER, ALAIN, a French writer, born in Bayeux toward the close of the 14th century, died probably in Avignon in 1449. On leaving the university of Paris, where he had completed his education, his writings and conversation soon gained for him a high reputation. He was intrusted with several missions during the latter part of the unhappy reign of Charles VI., and afterward he was attached to Charles VII. in various capacities. Although he had not taken holy orders, he received a prebend and archdeaconship in the cathedral of Paris, and served also as ambassador to Scotland. Among his principal works may be mentioned: *Le liore des quatre dames*; *Le quadrilogue invectif*, a kind of colloquy between France, the people, the nobility, and the clergy; *L'Espérance, ou consolation des trois vertus*, written in 1428. He was called by his contemporaries the father of French eloquence.

CHARTISM, a political creed in England, which takes its name from a proposed charter or bill of rights, the principal points of which were universal suffrage, vote by ballot, paid representatives, abolition of property qualification for representatives, triennial parliaments, equal electoral districts. These were the essential points, but in addition 80 or more were added, which formed the whole political scheme of chartism.—At the close of the war in 1815, the expenditures of England had reached \$360,000,000 yearly, while the national debt had been augmented in the reign of George III. by the sums of \$600,000,000 for the American war, and \$3,045,000,000 for the French wars between 1793 and 1815. The accumulations of capital which this debt from the nation to individuals represents had been amassed from the operations of newly-invented machinery, and from improved processes which enabled the profits of production to keep pace with the public expenditures. So long as the war lasted, the large sums of borrowed money, kept moving by the demands of the war and of continental trade, maintained a state of fictitious prosperity. With peace, however, came a terrible reaction. Thousands of skilled operatives were thrown out of employment, and reduced to starvation or parish relief. The theories of political equality broached by the leaders of the French revolution of 1793,

and afterward lost sight of in the reaction of opinion caused by the excesses of the French patriots, were revived. The burdens both of the government taxes and of the local rates (especially the poor rates, which were immensely augmented by the general distress), caused a temporary unity of purpose between the middle and the working classes. Demands for parliamentary reform and for an extension of political rights were put forward, and associations were formed for the purpose of promoting these objects. Among the wealthy and the aristocratic classes individuals were not wanting to advocate these popular demands. But such was not the general sentiment of the upper classes. A prohibitory corn law was passed in 1815 for the protection of the agricultural interest; while the manufacturing interest, which had only lately come to a sense of its power, was as yet diametrically opposed to the working classes. Capital was brought into antagonism with labor; and capitalists, requiring measures of repression for their protection, united themselves for a time with those whose only theory of home government was the assurance of property and the keeping down of the masses. In the spring of 1816 the popular ferment broke out in open disorder, and riots took place throughout the kingdom. Insurrectionary movements were organized everywhere, but they were out off before they had ripened to a head. Party politics ran high, and the general disaffection was so great, that the tory government at the head of affairs could find no better remedy than the suspension of the habeas corpus act, and the arrest and execution of some parties for treason. In 1817 a national petition for redress of grievances, with a million and a half of signatures, was got up mainly through the instrumentality of Major Cartwright. This gentleman was the friend and associate of Horne Tooke, Thelwall, and other active spirits of the period, and had founded the "society for constitutional information." The manufacturing districts became the great centre of discontent. Birmingham, which has always been the seat of great political activity, Leeds, Glasgow, and Manchester were especially marked in their demonstrations. At the latter place a great meeting was held for the purpose of discussing grievances, Aug. 10, 1819. Before the speaking had commenced, or any overt act had been performed, the magistracy called in the aid of the yeomanry cavalry, summoned the people to disperse, read the riot act, and ordered the yeomanry to clear the place. This was done; but 50 people, including several women and children, were killed and wounded. For a time the discontent was smothered; but a disposition was evinced in parliament to do something toward an amendment of existing abuses, and the questions of Catholic emancipation and parliamentary reform were agitated. A numerous and powerful body of speakers and writers, both in and out of the house, fought

the battle of the people. Among these Cobbett made a conspicuous figure. His "Political Register," first commenced on high tory principles, was afterward turned to the popular side; and his powerful common-sense articles aided the cause effectively, while his conduct under numerous convictions for libel set an example of submission to the laws. The rapidly succeeding deaths of Lord Castlereagh, Lord Liverpool, and Mr. Canning, the quarrels of the king and queen, some improvements in the state of trade, and the abundant harvest of 1832, distracted attention from political questions. The fire, however, was smouldering, not extinct. In 1827, "a national union of the working classes," the idea of which was borrowed doubtless from Robert Owen's plans, was founded at Birmingham, of which Lovett and Collins were the promoters, and which included among its members a large proportion of the middle classes as well as working men. These political unions, and the concentrated strength which they displayed, forced the attention of parliament; and to them must be attributed that measure of parliamentary reform which passed in 1832. The measure had already been brought forward in 1830, and in 1831 had passed the commons, but had been rejected by the lords; but the determined attitude taken by the people compelled the retirement of many of its active opponents, and the reform act was passed in a very mutilated state, embracing, however, a portion of the principles claimed, viz.: the disfranchisement of nominal constituencies, and the substitution of others which had, by population and wealth, the right to be represented in the great council of the state. From this period chartism as a separate development in the history of the nation dates. Whatever was gained by the reform act fell to the middle classes; the working men gained nothing. The suffrage was based on rateable property, and the great requisite of the ballot box was left unnoticed. George Grote, the distinguished historian of Greece, repeatedly brought forward his measure for the ballot, which was laughed out of the reformed house, and he retired from political life. The new poor law of 1835 further exasperated the working men against the whigs or reformers, whose partiality for the political economists of the Manchester school the chartists considered decidedly hostile to the interests of the working classes. The poor rates had always been a grievous burden; but the object of the new poor law was to make the relief as distasteful as possible to the recipient, and to place the distribution of the funds locally collected under the superintendence of central authority. With this object the parishes were joined into unions, while the internal regulations of the workhouses were of the most arbitrary character. They were generally considered, as indeed they were, little better than prisons, and the food was often inferior to that of the prisons. To render parochial relief more irksome, out-door relief was discouraged,

and applicants were driven "into the house." Trades unions were now formed throughout the country, with the object of fixing the rate of wages at something above a starvation standard; and with this purely social question the political question of chartism was incorporated. A convention of the chartist leaders sat in London, which was attended by delegates from all the bodies in the country and manufacturing districts. Chartism, as a political organization, had but little sympathy or encouragement in the agricultural districts; but the distress which was felt by the laborers created discontent, which found its expression in incendiarism, and "Swing," the watch-word of the laborer, became the terror of landlords and farmers. The engrafting of social reforms upon the purely political objects of the early associations was premature, and the avowal of extreme views by a section of the chartists who styled themselves "physical force men," alienated the middle classes from their cause, and even caused dissension and disruption in their own ranks. The radical members of the house of commons who were willing to befriend their cause found themselves embarrassed by the intimidating doctrines of the physical force men, and not less so by the direct interference with trade and with the laws of demand and supply contemplated by the trades unions. These were elements of discord, and arrayed the manufacturers and capitalists against their cause; and the liberals, who, in the cause of reform, had favored political unions, now discouraged them. Nevertheless, upon the presentation of a petition in 1839, its prayer was supported by 46 members, including some of the most eminent leaders of the newly-styled radical party. The physical force men endeavored to precipitate the march of events. Finding the petition disregarded, and the working men of the metropolis indifferent to the cause, they adjourned the convention to the northern districts, and endeavored to organize a combined revolutionary movement. Some insignificant demonstrations were made in the north, which were put down by the local police, and which were so mixed up with turn-outs for wages, and with hatred of mills and mill-owners, that the real end of chartism was lost sight of. In Newport alone, in South Wales, Frost, Williams, and Jones succeeded in getting up an insurrectionary movement among the miners, which was instantaneously quelled by a small party of military quartered on the spot; and the leaders, being brought to trial, were transported. In 1840 a new association was organized at Manchester, of which Feargus O'Connor, a member of parliament, was the ostensible head; but the prime movers were Lovett and Collins, the chiefs of the old unions, who had managed to escape the hand of the law. The chartists supported the anti-corn-law league, but the bond of union between themselves and the middle classes was broken. In 1841 a monster petition, with upward of a

million of signatures, was presented to the house of commons by Feargus O'Connor, praying for the release of the chartist convicts, and for the passage of a law embodying the six points. Mr. O'Connor propounded a land scheme to enable the chartists to become small freeholders, and thus to increase their votes; but the affair, from mismanagement, turned out a bubble, to the great loss and disappointment of the contributors. Chartistism fell for some time into neglect, and disappeared from public view until 1848, when the movements consequent on the French revolution aroused it, and an attempt was made to bring about a grand organized demonstration in London. Bodies of men were to march from the manufacturing districts, and from all parts of London, to hold a great meeting. There they were to be addressed by Mr. O'Connor and other important members of their party, and they were afterward to make a display of their numerical strength by parading in front of the houses of parliament. The intention was peaceable; but the doctrines of the ultra socialists in France, with whose name chartism had been coupled, alarmed the middle classes of London, and this temper completely neutralized the chartist programme. The demonstration took place in April; the government made no display of military force, although they took every precaution against any rising; no less than 150,000 residents in the metropolis came forward, and were made special constables. A large body of London chartists assembled at the place of meeting, but the county contingents did not come in; and Mr. O'Connor, fearing lest the spirit which he had evoked might be too potent, withdrew from the meeting. The demonstration began with a silent meeting, and ended with a peaceable parade through the public streets. The public tranquillity has not been disturbed since by apprehensions of chartism, and in 1856 Mr. John Frost was pardoned and permitted to return from transportation. Lord Brougham, on the occasion of presenting a petition, in July, 1857, declared himself in favor of an extended suffrage, but still on the basis settled by the reform of 1832, and by no means as a recognition of democratic principles. During the very same week a great meeting of non-electors was held at Rochdale, in the manufacturing districts, when the leading points of chartism were discussed and reaffirmed. One of those points, the abolition of the property qualification of members of parliament, was made the law of the realm in the summer of 1858.

CHARTRES, an arrondissement and city of

France, in the department of Eure-et-Loir; pop. of the former in 1856, 111,957, and of the latter 18,935. The arrondissement comprises 8 cantons, and possesses 275,000 acres of grain land, 3,500 of vineyards, 8,000 of various crops, 55,000 of meadow, 95,000 of fallow land, and 28,000 of wood and forest. The annual value of the raw material employed in manufactures is \$3,500,000, and of manufactured goods \$4,200,000. The number of hands employed is 1,500. The daily wages are for men 42 cents, and for women 17½ cts.—The city of Chartres is the chief town of the department, situated 54 m. from Paris, on the railroad from that city to Rennes, on a slope at the bottom of which runs the river Eure, which divides the town into 2 parts, connected by a bridge planned by Vauban. Upon the site of the former fortifications are fine boulevards, and some of the modern buildings are well built, but the general appearance of the city is not prepossessing, most of the streets being narrow and crooked. The great object of interest there is the cathedral of Notre Dame, commenced in the beginning of the 11th and dedicated in the latter part of the 13th century, one of the spires not having been finished till the 16th century. The principal front presents 2 square towers surmounted by 2 lofty octagonal pyramids. The old spire, of plain architecture, but cased with stone carved like the scales of a fish, is 374 feet high. The new spire is 418 feet high, built in the florid style. The rich portals, the painted glass windows, the beautiful choir adorned with valuable works of art, and other remarkable features, combine to make this church one of the most magnificent in the world. It was covered with an iron roof in 1841, the old framework having been destroyed by fire in 1836. There are several other churches in Chartres, and among the public buildings and institutions must be mentioned the residence of the prefect, 3 hospitals, a fine botanical garden, a museum, and a library of 80,000 volumes; a communal college and a normal school, a theatre, an agricultural society, and a charitable institution recently established by Dr. Aligre, whose name it bears, with accommodations for 200 aged poor, and for 100 poor children. The town carries on an active trade in the products of the country, has an important wool market, and manufactories of woollen goods, hosiery, leather, and machinery. But it derives its chief commercial importance from its corn market, which is the best regulated in France, and the management of whose business is intrusted to a corporation of women.

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